06
M
32
p.2

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

PROCEEDINGS

and

ADDRESSES

of

The American Philosophical Association

1932

VOLUME VI

of the combined proceedings and addresses
of the several divisions

THE LIBRARY OF THE
JUL 20 1933
UNIVERSITY OF ILLINOIS

Reprinted from THE PHILOSOPHICAL REVIEW, Vol. XLII, No. 2, March, 1933.

Reprinted from the PHILOSOPHICAL REVIEW, Vol. XLII, No. 2, March 1933

THE LIBRARY OF THE
JUL 20 1933
UNIVERSITY OF ILLINOIS

PHILOSOPHY AND THE PROBLEM OF VALUE[1]

I

IN Plato's dialogue, the *Charmides,* in the midst of a search for the definition of temperance or sound-mindedness, there is an interesting argument as to whether the belief or wisdom involved in sound-mindedness should be defined as a science of sciences. Is there a knowledge of knowledges and of ignorances, a science both of itself and of other sciences and non-sciences? Even if there were such a science, would it be essential to sound-mindedness? The final suggestion, in the searching and inconclusive dialogue, is that we need a knowledge of the good, or, as we should now say, a philosophy of value. The specialists in Platonic studies discuss the possible historical references in this dialogue to the contending views of Hippias and Prodicus. I am not now concerned with the historical problem, but I cite this opposition of views as an indication of a rift in the interpretation of the meaning of philosophy that has come down through millennia. Is the problem of value basic or central in philosophy, or is it merely incidental to other problems? Plato's own answer to this question seems to be as clear as any of his beliefs can be discovered to be. The problem of the good runs through most of the early dialogues. In the *Republic* the final stage of philosophical training is that dialectic which is to furnish a rational knowledge of the good. In the *Philebus* we have one of the most careful treatments of the problem of the good to be found in

[1] The presidential address to the Western Division of the American Philosophical Association at the University of Michigan, Ann Arbor, March 25, 1932.

philosophical literature. Unfortunately, we can make only a guess as to the contents of Plato's lost lecture on the good. In spite of the wide range of topics within the Platonic writings, the problem of value is clearly treated as the basic or central problem of philosophy. My purpose in this paper is to attempt a fresh formulation of this interpretation of philosophy.

What is the nature and what is the function of philosophy today? Obviously, philosophy has meant different things during the evolution of human thought. No doubt it will continue to change in the future. But what is it now? We need take no interest in somewhat pedantic disputes over the exact boundary-line that might be drawn with respect to this point and that point as to whether they are to be considered within or without the field of philosophy. We shall always have border-line problems and they are frequently of minor importance. Our question concerns the central problem or problems of philosophy. As the special sciences have been separated from philosophy in modern times, there have remained highly divergent interpretations of the essential nature of philosophy. Today we hear such different doctrines as that philosophy is the study of ultimate reality, that it finds reality behind appearances, that it leads us to that totality which is ultimately real, that it is the synthesis of all the sciences, that it examines the presuppositions of the sciences, that it explains the principles of knowledge which are implied in all science, that it is nothing but the method of the sciences, that its task is to show that there can be no philosophy except the sciences, that it studies the ultimate forms according to which the universe is constituted, that it is merely mathematical logic with a set of analytical or tautological propositions, that it harmonizes traditions with modern science, that it is a philosophy of life. Of course these statements do not exhaust the list, but they show the extreme diversity of statement. Frequently it is difficult to see what is common to such statements except a name.

It should be possible to state in some reasonable way what we mean when we say that a certain question is philosophical. Even if there are many debatable border-line questions, surely there must be many that most of us would agree to consider philosophical. What are they? I wish to state an hypothesis as to

the nature of the central philosophical questions. After this hypothesis has been stated, it will be compared with what seem to be the main rival theses in contemporary thought. The argument will be concluded with a short and fragmentary account of philosophical methods for this hypothesis as to the nature of philosophy.

II

There is nothing new in the hypothesis here presented. The doctrine that the primary task of philosophy is the study or the theory of value has been held by many thinkers throughout the ages; but it seems to me that it needs to be stated freshly because it has frequently been presented in partial or inadequate forms which have led to misunderstanding.

There is one misunderstanding that is particularly important. It must be confessed that I have been guilty of this misunderstanding in the past. Many writers on the theory of value seem to hold the mistaken doctrine that such subjects as ethics and æsthetics are value-studies, and that the theory of value is concerned with such studies and with the general theory of value that may constitute their basis, but that such theoretical subjects as logic and epistemology do not constitute part of the study of value. A dualism of this type has been frequently held, and it is usually based on some assumptions to the effect that value-theory is concerned with the affective or desiderative side of experience, whereas logic and epistemology embody pure thought or reason untainted by such things as feeling or desire. If this were the case, I should not hold that philosophy is identical with the study of value. I shall urge that there is no such dualism.

The course of my main argument will be as follows. I shall first attempt to show that all main divisions of philosophy really do involve value-problems. Logic, epistemology, metaphysics, ethics, æsthetics, and some related fields, will be surveyed to show that there is a value-problem in each field. Then the question of a general field of value will be considered. The conclusion will be reached that all problems that are primarily problems of value are philosophical. The next main part of the argument will attempt to refute doctrines that hold that philosophy should be interpreted as dealing either entirely or primarily with problems

different from that of value. Here the problems of logic, epistemology and metaphysics will be reconsidered in an attempt to show that there are no philosophical problems in these fields other than that of value and whatever may be involved in it.

Let us first consider the related problems of logic and epistemology in an attempt to show that there is a value-problem in each of these subjects.

Knowledge is not a thing or relation or event or process to which we can point. Many thinkers talk as though it were something as denotable as tables or chairs. Whatever the adequate definition of it may be, it must be characterized, at least in one universal aspect, as belief, judgment, thought, inference, or assumption, that has been subjected or that can be subjected to critical evaluation and justification. In its first characterization, knowledge is trustworthy belief. It is a belief or a system of beliefs that can be logically justified. Within logical justification I include everything that may be thought relevant and adequate in logic and epistemology and scientific method. When we consider the trustworthiness of a belief apart from chains or systems of beliefs it is usual to speak of epistemology. When we consider beliefs in chains of deductive or inductive proof or in other systematic interconnections we usually consider the subject as being logic. Yet, fundamentally, there is little difference here. In all these problems we are considering the logical evaluation or criticism of beliefs as purporting to be knowledge.

Many philosophers seem to long for the good old days when they could be competent experts in the field of psychology. For better or for worse, those days are gone, probably never to return. The task of the philosopher now in this field is the same as his primary task has always been, to show what distinguishes more trustworthy from less trustworthy thought. Our beliefs, in all their groupings, are found, under critical or evaluative examination, to fall into a scale. With no pretence here of an adequate account of the matter, it seems that beliefs constitute a scale which runs from what might be called zero probability or zero evidence or zero plausibility to more and more probability. When this logical trustworthiness is such that we think it is not reasonably to be questioned under present conditions we call it practical

certainty. The concept of absolute certainty in knowledge seems to me to have the same objectionable characteristics as the notion of an absolute best or perfection has in the theory of ethics or in the general theory of value. In trivial statements of common life, provided no embarrassing questions are asked, and in the tautologies of analytic logic, credulous philosophers find instances of alleged absolute certainties. It seems probable that in the significant hypotheses with which science is mainly concerned, there can be no final summation of evidence. Every hypothesis is subject to further examination, to further criticism, to further testing of its plausibility. Modesty suggests that we recognize that our reasonable claim is to the effect that one hypothesis is truer than another in the light of the available evidence. That is, one hypothesis is more plausible than another, more probable, more trustworthy. This fact of a scale of logical value is the central fact of logic and epistemology. Logic and epistemology are parts of the general theory of value.

Traditional logic has usually recognized that it is concerned with the evaluation of inferences. But it has usually been so obsessed by the trivial tautologies embodied in so-called immediate inference and in the forms of the syllogism that its deductive logic has been sterile. The newer symbolic logic or mathematical logic, which is really a more adequate deductive logic, has been a great stimulus to recent philosophy. But the actual propositions of deductive logic are primarily tautologies. The tautological forms of deductive logic have their value for the processes of knowledge. But the main function of the newer mathematical logic is to be found in its definitions and analyses. The more elaborate forms of propositions, especially in their relational aspects, the enlargement of the old syllogisms into a generalized logic of classes, the structure of a logic of relations—these discoveries constitute the chief contribution of mathematical logic to the processes of knowledge.

I do not wish to make dogmatic and unsupported statements here as to the fundamental principles of inductive logic, probable implication or inference, and the nature of probability. But no account can be adequate which does not include a treatment of the subject as a criticism or evaluation of belief and inference.

We must deny the adequacy of mere numerical calculations as a complete account of probability. Alleged intuitions of indefinable probability-relations merely dodge the problem. The basic fact must be that certain methods of thinking give us more probable or more trustworthy conclusions than we could have otherwise. If induction and probability are stripped of their character of logical value, they lose all logical or philosophical significance.

Those who insist that the deductive and the inductive aspects of logic must be brought together into one comprehensive movement of reflective thought must admit, as in Dewey's analysis of reflective thought, that the final decision deals with the logically better hypothesis. From a worker in the physical sciences, Irving Langmuir, I wish to quote these statements, which indicate our problem, no matter how much more elaboration and criticism may be needed.

"Our choice, therefore, does not lie between fact and hypothesis, but only between two concepts (or better two models) which enable us to give a better or worse description of natural phenomena. By better or worse we mean approximately: simpler or more complicated, more or less convenient, more or less general."[2]

The task of the philosophical logician is to formulate and criticize these principles of logical valuation. Are we always justified in assuming that the simpler hypothesis is the logically sounder? What is the logical validity to be found in the guiding principles of simplicity, economy, unity, comprehensiveness, consistency? How do the concepts of continuity or discontinuity, causality or tychism, things or events, qualities or relations, function in our task of acquiring trustworthy belief? Such problems run through our entire intellectual enterprise. They are fundamentally problems of logical evaluation. But they are all too often treated naïvely and dogmatically without due recognition of the problems of logical value involved.

No doubt many philosophers who deny that philosophy is primarily the study of value take this position because they think that philosophy is primarily metaphysics or ontology. When I

[2] Irving Langmuir, "Modern Concepts in Physics and Their Relation to Chemistry", SCIENCE, Vol. LXX, p. 393.

compare the present hypothesis with alternative doctrines, it will be argued that what is usually called metaphysics embodies an uncritical and illegitimate use of the categories of independence and dependence. This questionable use of concepts finds application in most of the traditional types of metaphysics, in the controversy over monism and pluralism, in realistic metaphysics in many varieties, in the controversy over realities or things in themselves that are assumed to be behind appearances, in the absolutistic doctrine of a whole for which the parts are mere aspects or appearances, and in the many varieties of idealistic or personalistic or subjective theories. I shall argue that the reasoned proofs which have been offered for such doctrines are fallacious because of an uncritical use of the concepts of dependence and independence. In other words, it will be argued that there is no proper sphere of philosophical knowledge in connection with these problems. Of course there is a philosophical problem here in the logical criticism or evaluation of our concepts or categories in these fields.

It is possible to treat metaphysics as a value-study in which the categories of real and unreal or the notion of degrees of reality are interpreted as involving value-characteristics. If real means important, or significant, or meaningful, then metaphysics might be treated as a value-study concerned with such problems. Or if degrees of reality refer to the concept of perfection, it is clear that such a study involves the problem of value. I do not wish to deny the possibility of such a value-interpretation of metaphysics, though I doubt the wisdom of talking about reality when we mean value. On the other hand, if reality is used to mean existence, then it must be insisted that existence is not a value-term. Philosophy must treat the use of the categories of existence and non-existence from the logical or epistemological point of view. That is, philosophy treats the categories of reality or existence as elements in the process of knowledge. A claim to have knowledge about existence raises the question of logical value in that claim, but the facts of existence about which we claim to have knowledge are matters for ordinary experience or for the special sciences rather than for philosophy.

There is no justification for the assertion that philosophy can

claim to have knowledge about existence, or reality in this sense, in a way that can be superior to the beliefs of common sense and science. Ultimately, philosophy must take its existential assumptions, as far as it needs them, from the special sciences. There is no royal road to existence. What occurs in the physical, biological, psychological, and social spheres must be determined by the special sciences that deal with these matters. No doubt philosophy must criticize the logic that is used in the sciences, but this criticism cannot give a substitute for the sciences. The categories which seem to give knowledge in the special sciences must have some appearance of validity, and their improvement will come partly from the specialists who are advancing knowledge in the special sciences. What knowledge indicates as the facts of the physical world is found in a laboratory and not in a philosophical library. The philosopher's contribution to this problem can be nothing but the study and valuation of the more or less basic categories and assumptions involved in science and scientific method.

The field of ethics has frequently been treated as identical with the entire theory of value. But such usage tends to ignore the peculiar problems of moral value and to give an unduly moralistic emphasis to the general problem of value. Ethics studies whatever is involved in the distinction between right and wrong in conduct or between what ought to be done and what ought not to be done. The central problems in ethics are matters of moral valuation, to which problems of history and psychology are subordinate.

Those writers who follow G. E. Moore in analysing such moral concepts as right into dependence on general value-concepts such as good (or better, as I would say) seem to me to be correct in general though frequently they simplify moral phenomena too hastily and too radically. But even writers, such as W. D. Ross, who insist that right cannot be defined in relation to goodness or value in general, must recognize that the moral concepts they accept as ultimate are value-concepts, though special rather than general. It may be that some special value-concepts are not reducible to the concepts of general value such as good or better. Similar theories might be defended about logical or æsthetic as

well as about moral value. Such theories involve a more complicated theory about values, both general and special. Whether moral value is reducible to general value or is irreducible, we need more adequate analyses and morphologies of moral phenomena in the light of their similarities and their differences to other types of value.

Many aspects of what is called æsthetics and the theory of art do not seem to be philosophical in nature. The psychology of artistic creation and enjoyment is a matter for empirical psychology. But philosophy must include the philosophy of the criticism of art and æsthetic value, both as to the meaning and criteria of æsthetic value and as to the place of art in life and in relation to other values. Whatever our theories about the meaning and the nature of beauty and other æsthetic concepts, the study of such problems is a study of one type of value. It must be approached both separately as a detailed field of study and inclusively in relation to other kinds of value.

Whether religion is primarily a problem of value, whether there are special religious values such as the sacred or the holy, whether religion is concerned with all human values in their cosmic or their social setting, are questions which obviously constitute part of the study of value, but which I shall not now discuss. There are many other fields in which similar problems of value arise. Is economics concerned with economic values primarily or is it concerned with prices or with the study of economic institutions in their historical setting? Is there a field of legal values or should the study of law be purely descriptive, and in either case what is the relation of law to ethics? Is philosophy of history possible as a study of progress? Must the theory of education be based on a study of educational values, and how are they related to other values? Into these and similar questions we must not here enter. Wherever there is a basic question about the nature of value or about the critique of valuations there is a philosophical question. On the other hand, many problems in these fields are not problems of philosophy. I shall not attempt to set up any exact boundary-lines here.

Whether the fields of ethical, æsthetic, logical, and other types of valuation are merely similar in certain respects without any

identical basis, or whether there is an underlying general theory of value, is one of the debatable questions that we must not argue here. It seems to me more probable that there is a general field to which all the special values are related. Philosophy then is the study of the general nature of value and also the study of its special fields, such as the logical and the ethical. In one sense the general nature of value is the basic problem of philosophy. From the point of view of methodology, however, the problems involved in the logical values are basic, since we are assuming the logical principles involved when we attempt to have knowledge about value in general.

I have been concerned to formulate what seem to me to be the central problems of philosophy. I do not wish to tie this hypothesis to any of my own thoughts to the effect that the theory of value needs to be entirely re-studied in the light of a relational analysis. This relational analysis is itself a doctrine about the value for knowledge of the type of relational logic developed in recent mathematical logic, as well as in correlational statistics. But whether this particular type of analysis is sound, or rather logically better than the previous types, we need not debate. My present contention is merely that the basic problems of philosophy are problems of value, to be studied as best we may.

So the thesis is that philosophy is now to be considered as the study of the general and of the special fields of value. There is no other part of philosophy which is prior to the problem of value, there is no other separate part of philosophy, and there is no part of it at all that is not concerned with the problem of value.

It is to be admitted that there are boundary-problems here as elsewhere. There are problems that are partly about value and partly different. This fact can be observed most obviously in ethics, where many problems involve both the specific question of value and also other questions of psychology and the various social sciences. But the discovery of borderline-problems is no excuse for failure to determine the exact nature of the central problems of philosophy.

It should be admitted that, even if the argument is sound as to how we today are to state our problem of philosophy, the future

course of thought will modify or improve our formulation. What we now call the problem of value may in the future be stated in other terms or in other relations. But this possibility is a general characteristic of all aspects of the knowing process.

The formulation that has been given above concerning the nature of philosophy has been concerned with a somewhat technical analysis of the essential problems of philosophy. Perhaps a simple and positive statement is now in order. Philosophy is quite literally, as the Greeks called it, the love of wisdom. The specialist in the various scientific and scholarly disciplines abstracts from the question of the reasonableness of his attitudes to his subject-matter. He takes for granted the competency of the human mind to know facts and to deal with them in knowing or in living. The philosopher must overcome this abstraction of subject-matter from human attitude. He must ask whether we know what we think we know, how trustworthy is our knowledge in each field, what constitutes trustworthy belief, and how is our belief to be tested and criticized. He is not concerned merely with the causal analysis of human attitudes, as in psychology, though obviously he must use whatever information of this sort the psychologist can give. The philosopher's problem is with the wisdom and reasonableness of human attitudes. Nor is he concerned with the knowing attitude alone. He is concerned just as fundamentally with the reasonableness of our attitudes in such matters as ethics and æsthetics. The specialist in social or artistic matters may take for granted his assumptions about welfare or the ends of living and his assumptions about art and beauty. But the philosopher must criticize and study these basic assumptions. He seeks to formulate the principles that should guide our basic assumptions as to what is right or what is beautiful. He is concerned with the general principles of all our valuation as well as with the principles of our special types of valuation. Moreover he is concerned with the principles involved in a synthesis of all our valuations. He seeks wisdom concerning the place and the importance in life of knowledge and morality and art and religion. Both the critical analysis of the special and general values and the synthesis of all values into a synoptic attitude to life and the world constitute the love of wisdom that we call philosophy.

III

Now that the present hypothesis has been stated, let us consider some alternatives. It would be an interesting but too lengthy discussion to trace the changing emphases in the meaning of philosophy during the past twenty-five centuries. Instead I shall examine a few of the outstanding doctrines now prevailing.

Probably the most important rival theory is the doctrine that philosophy is the study of reality, or perhaps of ultimate or absolute reality. This is not the somewhat trivial doctrine that the philosopher should be the encyclopædist of all knowledge. The doctrine is that the philosopher is seeking a reality that is different from the facts studied by the special sciences. Sometimes this reality is treated as behind phenomena, sometimes it is treated as a totality that includes the phenomena as aspects or parts. In either case, the philosopher is supposed to deal with the materials of common sense and science but he is supposed to go deeper or higher. I need not repeat here the short remarks above about the use of the term real as a value-category. When reality refers not to value but to an assumed ultimate existence, we encounter a questionable use of some concepts or categories which I wish to criticize briefly.

The metaphysics of the type now under consideration makes very uncritical use of the concepts of dependence and independence. When it is asserted that reality is ultimately monistic, dualistic, or pluralistic, or that reality is dependent upon mind or experience, or is independent of mind or experience, in short when monism, dualism, pluralism, idealism, or realism, is under discussion, the argument assumes some questionable doctrines about the categories of dependence and independence. I wish to argue that the use of these categories by all parties in most metaphysical discussion is unsound. The conclusion of my argument here will attempt to eliminate this aspect of philosophy.

For many years I have felt that there was something seriously wrong in the essentials of the arguments and doctrines that prevail in what is called metaphysics. Usually I have been inclined simply to leave the subject alone. A recent attempt to re-state the problem of objectivity *versus* subjectivity in the general theory of value, however, has led me to formulate a contention about meta-

physics which I wish to state here very briefly. The argument, in short, is that there are certain fields in which the concepts of dependence and independence have specifiable meanings and verifications, but that these fields do not include the problems usually called metaphysical, and that the prevailing doctrines and arguments in metaphysics are unsound because of an uncritical use of these concepts.

There are two fields in which I can find significant uses of the concepts of dependence and independence. One is mathematics and any other study which uses the deductive-system form. The other is the use of statistics for inductive studies.

In a deductive system we may have two or more postulates which are assumed or proved to be consistent. The question then arises whether the postulates are independent. For the sake of brevity I shall limit the discussion to the case of mutual dependence or independence. In the deductive field two or more postulates are mutually independent when and only when neither is deductively implied by the other, or, in different language, when and only when either is consistent with the negation or contradictory of the other. Two or more postulates are mutually dependent when and only when either implies the other, or when and only when either is inconsistent with the negation or contradictory of the other. In the final analysis the use of the concepts is to be tested by the presence or the absence of logical contradiction in a set of propositions. Here contradiction is not used in any vague sense, but means the joint affirmation of a proposition and its negation. For this there is in principle a definite test. There are, of course, difficulties in applying such a test under some conditions, but the criterion is definite. There either is or is not self-contradiction within a set of propositions.

The other use of these concepts is to be found in inductive or statistical studies. The simplest use here may be found in the statistics of attributes. There are several equations in use but the meaning is essentially the same in all. Attributes A and B are mutually independent if the proportion of A's amongst the B's is the same as in the universe at large, or if the ratio of A's to non-A's amongst the B's is equal to the ratio of A's to non-A's amongst the non-B's. In dealing with two-term relations we

have similar formulæ to the effect that two orders are mutually independent if the coefficient of correlation, based on the sum of the squares of the differences, is approximately zero.

In considering these formulæ we notice that the statistical usage of the concepts of dependence and independence is usually a matter of degree. Attributes or relations are more or less dependent if certain figures are approximated; they are more or less independent if other figures are approximated.

We should not assume that the deductive and the statistical uses of the concepts of dependence and independence are the only possible uses. There may be an indefinite number of them. But the two uses in deduction and in statistics are the only ones I have been able to discover that seem to me to be logically valid or sound. I have never found the slightest hint anywhere of any other valid application of these concepts. How can they be validly applied by us to the usual metaphysical or epistemological theses? Surely every candid thinker today realizes that it is possible to enunciate metaphysical systems that are either monistic or pluralistic, either realistic or idealistic, without that type of self-contradiction that is involved in the deductive use of the concepts of dependence and independence. Moreover, anyone who uses the statistical formulæ will find no way of applying them to the traditional metaphysical disputes. I cannot find any evidence to indicate that these disputes are answerable with any valid proof, either deductive or inductive.

Moreover, it seems that these traditional problems make a very uncritical use of a type of question about contrary-to-fact statements. In general, we may say that there is no way of answering the question, what would the universe be if it were different from what it is? One can have idle fancy here but not knowledge. Everything is what it is in the relations it does have to everything else. It is only under certain conditions that one can significantly ask or answer the question what anything would be if anything else were different. If one is not considering deductive propositions, one can answer such questions only by applying statistical formulæ to changes that occur in nature or that are made to occur by manipulation either in nature or in a laboratory. One has significant knowledge about the empirical world only when it is

based on actualities rather than on contrary-to-fact suppositions.

So far as our now available methods of knowledge go, the usual type of metaphysics seems to be incurably invalid.

Many recent thinkers, who realize the dangers in the metaphysical dogmas here criticized, tend to a treatment of philosophy as being logic. It may be that from a certain standpoint the problem of logical value is more central in philosophy than any other special type of value, since logical value is presupposed in our reflective inquiry into the nature of any type of value. But this is a question as to the interrelations among the value-studies, which need not be debated here. The theory to be criticized is the doctrine that philosophy is to be identified with logic, or with logic and epistemology, treated as non-value-subjects. It was argued above that there is a problem of logical value. Here I wish to deny that any problem should be called philosophical in the study of logic or epistemology unless it involves a problem of logical value. In other words, there are no philosophical problems of logic or epistemology save as problems of logical value are raised.

The history of science or of thinking is not a philosophical problem if treated merely as a record of historical facts. The philosophical problem arises only when there is an evaluation as to the increasing adequacy or trustworthiness of the thought. So a genetic study of thinking from childhood to maturity is psychology until the problem of the logical value of the thinking is considered. The psychology of perception, of learning, of meaning, of thinking or inference, can no longer be considered within the scope of philosophy, however much the philosopher needs to learn about these subjects from psychologists. In so far as logic and epistemology pretend to be metaphysical in their content or implications, the objections listed above apply to them. I can see no alternative except the frank recognition that these subjects are concerned with the critique or evaluation of beliefs and related processes from the standpoint of their logical trustworthiness. In other words, these subjects are philosophical only as they are treated from the standpoint of value. So there is no rival hypothesis here that can be defended.

A recent variation on the theory that philosophy is logic as a

non-value-subject may be found in what I shall call the tautological school of philosophy. Some thinkers, following Whitehead, Russell, and Wittgenstein, treat philosophy as being essentially deductive logic, with the principles of the *Principia Mathematica* as the main example of philosophical propositions. As Russell has said, the propositions in those books are something very like tautologies. In some sense they are principles of consistency or non-contradiction in fact or inference. No doubt it is true that deductive inference in violation of these propositions is fallacious. But I cannot think that all of philosophy is contained in tautologies or even that all of logic is. Deductive implication and deductive inference do seem to have the characteristics described in the *Principia Mathematica,* with whatever correction time may show. But deductive implication is only one aspect of logic, and only one very small part of philosophy. Perhaps it is well that we have specialists in logic who investigate details of logic without consideration of the problem of logical value upon which all such details must rest if they are genuinely philosophical. But when this study is stripped of its problem of logical value it tends to unite or merge with the abstractions of pure mathematics. Here we have one of the boundary-line problems about which I shall not be dogmatic.

Another hypothesis is the belief that any theory, any hypothesis, any definition of concepts, may constitute the work of philosophy. It needs little consideration to see that the special sciences will formulate their own theories, and that they will define their own concepts in the light of their own needs. Philosophy here can be nothing but amateurish, unless it frankly turns over to the scientists the needs of each subject as a specialty. What the scientist does not do, however, and what the philosopher should do, is to consider systematically the logical value of the methods and the categories that are used or that may be used in the sciences, as well as in other aspects of experience.

A somewhat different form of the doctrine that philosophy is logic may be found in the doctrine that it is the same as analysis. No doubt it involves analysis, but so does every subject. Is all analysis philosophy? That would be a bold claim for which I can see no justification. Every subject of thought involves anal-

ysis. To assert that philosophy is identical with analysis implies that it is an aspect of every subject. Sometimes we do use the word philosophical as equivalent to analytical, but this usage is a remnant of the former merging of all subjects in philosophy. Such an interpretation of philosophy implies that there is no separate discipline to be called by that name. Moreover, philosophy is not merely analytic. Analysis of philosophical problems is one aspect of its task, but there is no reason to think that it should be merely analytic. It may need to use other methods than that of analysis, as I shall argue later. So it involves analysis but is not to be identified with it. Moreover, it seems clear that we should state what is to be analysed in philosophy. Mathematics involves analysis. Every science includes analysis. A study is part of philosophy only if it involves the study of value both by analytic methods and by whatever others may be helpful.

The doctrine may be held that philosophy is the logically prior study of all the forms of possibilities, while the special sciences ascertain which form of possibility, as described by philosophy, happens in this particular universe to have attained actualization. But such a task for philosophy can amount to nothing but a study of whatever is not self-contradictory. There is no reason to think that non-contradiction has any properties other than absence of contradiction. And any science can discover for itself whether its structure is free from contradiction without a special communication from philosophy.

Does philosophy have any special capacity to intuite forms, or essences, or structures, which are logically prior to and independent of the empirical contents and facts of scientific description? It can reasonably claim to investigate the forms of the structures of knowledge. But here we are dealing with the logical values of our knowledge-systems. No doubt we intuite or cognize the forms and essences involved in our logical construction. But apart from what is involved in our cognitive methods, systems, and concepts, there is no special set of forms prior to the facts dealt with in the special sciences.

Logic deals with the trustworthiness of our beliefs and inferences. In the process of trying to advance science and knowledge

we define or assume various systems of concepts or categories. The critique of categories now in use or the attempt to formulate new systems of categories is a proper function of philosophy. But such discussions should be treated as a study of the tools of human knowledge, not as Platonic myths about what a deity or an angel might know. The categories or concepts of particular and universal, substance and event, physical and mental, and many similar ones, are tools in the human process of knowing. What may be a good tool at one stage of knowledge may be followed by a better at another.

We may pass over with mere mention the notion of some persons that the sole function of philosophy today is to commit suicide, or to show that there are no genuinely philosophical problems. No doubt many scientists have such ideas, but the answer is obviously to develop philosophical material which will win the esteem of these sceptics about philosophy. Perhaps they are not without some justification in regard to much of what passes as philosophy today.

It may be suspected that I have been arguing that philosophy should be a philosophy of life. This is not the case. I understand philosophy of life to mean an attempt to popularize philosophy and consider only those problems and materials that are understandable by persons without special training. It is an attempt to exclude from consideration the more difficult problems connected with logic and epistemology, or with the categories of science and knowledge, and an attempt to preach salvation for those who have an interest in living but none in the basic problems of philosophical theory. There is a place for philosophy of life. It belongs among the popularizations of philosophy. But it is neither the central nor the basic aspect of philosophy. The task of the philosopher is to investigate and to teach the theory of value. The world will be saved, if it is saved, by many kinds of person, not just by philosophers.

It is obvious that the theory I am urging is in many ways similar to the doctrine expressed by John Dewey in the last chapter of his *Experience and Nature*. I find myself frequently agreeing with the larger aspects of his thought but disagreeing with many of the details. It was partly by the writings of Dewey that I was

persuaded that logical valuation is a part of the general theory of value. But to say that in some sense all philosophy is a branch of morals, or that it is a method of understanding and rectifying specific social ills, seems to me to need serious qualification. Nor can I agree that the task of philosophy is to adjust the body of traditions to new scientific and political tendencies. Many of us must reject these views even while agreeing that philosophy has as its central task the problem of value or criticism.

Only brief consideration can be given to several eclectic theories. The doctrine that philosophy has two parts, one critical and the other speculative, might be taken to mean that critical philosophy is what I have called philosophy of value, but that metaphysical or theological speculation constitutes another part of philosophy. My previous arguments against the traditional concepts of metaphysics show that there is no place for such speculation within the sphere of philosophy as a body of knowledge. Another view holds that philosophy deals with methodology, metaphysics and value. In this scheme the methodology and value deal with logical and non-logical value, and the second part is the traditional metaphysics. Ralph Barton Perry, in his delightfully written little book, *A Defence of Philosophy,* has told us that philosophy seeks the bottom and the whole of things. While science seeks relative realities, causes, truths, and values, philosophy seeks the ultimate bottom and the ultimate totality in each of these four problems. Thus science seeks only a cause that is also an effect, but philosophy seeks a cause that is an absolute cause and that is not also an effect. It seems to me that such doctrines make assumptions about bottoms and totalities without any logical justification and without any possibility of proving the theories to be proved.

Finally, I must refer to such writers as Muensterberg, Rickert, and Urban. These writers resemble pragmatists in treating philosophy as being critical or evaluative, but they have doctrines of absolute values. My objection to their formulation of the nature of philosophy is that they tend to state the questions of philosophy in such a way as to assume the answers. The doctrine that philosophy is the study of value does not imply any particular theory as to the nature of value. These writers have frequently tended to be dogmatic system-builders rather than critical inves-

tigators. The doctrine that philosophy is the study of value should not be tied down to the theories either of American pragmatism or of German absolutism.

Our discussion has now dealt with the theory that philosophy is to be defined as the study of value, and this hypothesis has been compared with the most prominent alternatives in contemporary thought. No doubt it will be admitted that, in some sense and with whatever interpretation, there is such a study as the theory of value. The study of value has usually been included as one main function of philosophy. The hypothesis that philosophy is identical with the study of value does not claim infallible demonstration. No theory in philosophy should make such a claim. But it seems probable that we should now include nothing in philosophy as a rational body of knowledge other than the study of value.

IV

The hypothesis that philosophy should be interpreted as the study of value or valuation raises the question as to the methodology for philosophy thus defined. My concluding remarks will be limited to a few questions and suggestions concerning philosophical methods.

For our present purposes we need not consider the problems of the nature or the methods of introductory courses or texts in philosophy. Nor are we concerned here with the methodology of the history of philosophy, important as that may be. The important problem is the methods of investigation or research into the questions of philosophy. What are they? The hundreds of persons in this country who teach undergraduate and graduate courses in philosophy and who write articles and books cannot all claim to be geniuses above the need of rational methodology. But I can find nowhere an adequate and systematic account of the methods to be used in philosophical investigation. Much of our work seems to exhibit the self-confidence with which, when we were blindfolded children, we pinned a tail on the donkey's picture. Can we today, in the light of modern science, assume that the human mind just naturally judges truly? I must confess that I am unable to be so sublimely optimistic. We need an adequate formulation of a philosophical methodology. Our task is

not that of pretending that we have a method capable of giving us absolute certainty; it is the task of formulating methods and criteria which probably enable us to increase the reliability of our beliefs. Our basic assumption is that more critical methods give us more trustworthy beliefs than do less critical ones. We observe what are the critical methods that seem to be more or less reliable in the mathematical, the statistical, the historical, and the laboratory studies. But what are the methods for use when the mind studies its own standards and values? The philosopher finds it easy to talk about method in general, or scientific method in particular. He observes the scientist when he seems to be successful, and so announces the procedure of science. But he does not make clear his own method in philosophy. He explains how the scientist is empirical but not how the philosopher is so. He commends the scientist for insisting on the verification of every theory, but he seldom attempts to verify his own philosophizing, nor does he explain how this could be done. We say that we follow the methods of reflective thought. But what are the methods of reflective thought when it is not functioning in the special sciences but is considering its own standards?

Most of the classical systems of philosophy have been deeply concerned with problems of method. But when philosophy included all or most of the special sciences the discussions about method naturally did not make a distinction between methods for the sciences and methods for philosophy. Some of the methods that are trustworthy in the special sciences may be transferred without change to the study of philosophy. But philosophy has separate problems of its own; it may not be able to use some of the methods of the special sciences and it may need additional methods that are not applicable in the special sciences. We can hardly deny that our study of philosophical problems should involve careful analysis of our terms and concepts. We use analysis and definition. We may formulate our theories in a deductive system. We may test systems for consistency. We may study the implications of our axioms or postulates. We may study alternative systems. We may aim at completeness in our study of the considerations involved in a philosophical problem. We may try to be empirical, though it is not clear how we can

reasonably be empirical in dealing with some philosophical problems. It is not clear whether we can adequately verify the theories about problems that are really philosophical. We may be coöperative and attempt to get common understanding among philosophers, but it is not clear that agreement among philosophers is a very adequate test for philosophical truth. We may try to be on guard against the fallacies that frequently mislead philosophers, but we are not agreed as to what are the sources of fallacious thinking in philosophy. We can be original and inventive, at times, but we are vague as to the methods for testing our inventions.

It is obvious that in some sense philosophy should be synthetic and synoptic. But how should we be synoptic? Surely philosophy is not an outline of all knowledge. We may say it is synoptic of all the values involved in our activities and experiences. But this tells us nothing as to the mode of the synopsis. Not every synopsis is adequate philosophy. How can we distinguish the more from the less adequate synoptic thinking?

We may appeal to immediate experience or we may claim some faculty of logical intuition. But in either case it seems clear that we make many debatable assumptions that determine the character of our philosophical theories. We may attempt to list some statements that are not called in question at the present time, and so seek a foundation for an alleged certainty or infallibility of philosophical argument. But there is some reason for thinking that the search for certainty and the claim to have certainty constitute the main sources of fallacious thinking in philosophy. By reversal the philosophies of certainty beget barren extremes of scepticism and agnosticism. We need a systematic methodology for philosophy, but at present we must admit that we have only its fragmentary beginnings.

In times past I have distressed many of my colleagues by strange attempts to apply the mathematical logic of relations to the analysis of the basic value-concepts and the specific ethical concepts. Is not the use of such analysis necessary in all aspects of philosophy, perhaps even in the concepts of truth and knowledge?

In even worse ways, I have attempted to use the methods of statistics, especially the methods of the statistics of correlations,

to throw light on ethical problems. No doubt I have been at fault in allowing people to think that I think, what I do not think, that statistics alone can settle philosophical problems. But may it not be possible that our reflective criticisms and valuations may be improved by being in contact with those empirical facts which are closely connected with our problems? Can some philosophical theories be given at least partial verification by confrontation with empirical facts?

I do not mean to suggest that the problem of value can be studied by nothing but the two methods of the logic of relations and correlational statistics. There may be many methods which no one has yet tried. Should we not experiment with any possible method to see if it helps?

If philosophy is defined either as a study of value or as a study of our evaluative attitudes, it seems that one of the most basic difficulties in philosophical methodology is to be found in what is frequently called the problem of the objectivity or subjectivity of value. There is a common problem of the influence of so-called subjective attitudes on all our beliefs or thinking processes. But in many of the special sciences, especially in the mathematical and the laboratory sciences, this so-called subjective coloring may be avoided or standardized, at least in part. It is clear that if philosophy studies values or evaluative attitudes the question of subjectivity and objectivity is extremely important for philosophical method.

The hypothesis that philosophy is the study of value should not be tied to any specific theory concerning the objectivity or subjectivity of value. But we may have an objective and an investigative approach to the problem of value, however subjective value may be in its final interpretation.

The problem of the objectivity and subjectivity of value has many phases. But in one of its most important aspects, objective means independent of human attitude or judgment, and subjective means dependent on human attitude or judgment. Of course there are many subdivisions of the problem. But if my previous argument is sound, to the effect that our concepts of independence and dependence have restricted ranges of application, it follows that we must be critical and cautious in our assertions about this

aspect of the problem of the objectivity or subjectivity of value. How does one know or prove either objectivity or subjectivity in this problem? What is the methodology for such proof?

Moreover, our theories concerning this problem have been very restricted. Frequently it is assumed that value is objective and independent, either as a set of ultimate essences to be known by intuition, as in the doctrines of G. E. Moore and certain followers of E. Husserl, such as M. Scheler and N. Hartmann, or as characters having metaphysical or theological references, as in such idealists as Bernard Bosanquet. These writers tend to a rationalistic theory of value. Other writers tend to affective theories. Either they reduce value to such things as pleasure or interest, or they regard value-judgments as being expressions of feeling or interest. In other words, most of our theories tend to what may be a onesided rationalism or a onesided emotionalism. The rationalists are 'objectivists' and the others are partially or entirely 'subjectivists'. I suspect that we should learn to be sceptical concerning both types of theory of value. The recognition that value involves both logical and epistemological factors and also ethical and æsthetical factors suggests the importance of a more critical attitude concerning its objectivity or subjectivity.

Philosophers have discussed many hypotheses as to the relation of sense and thought in our knowledge of the physical world. But the relation of reflective thought to feeling or desire in the determination of our valuations has been treated very dogmatically and arbitrarily. Some have insisted that non-affective thought or reason or intuition gives us insight into values. Others have held that all valuations must be reduced to non-reflective feelings or interests. Must not the entire problem of the relation between such processes as preferences and such processes as reflective thinking be studied freshly and completely as a basis for an adequate general theory of value?

V

These fragmentary observations about method must suffice. I have tried to state the only consistent and workable definition that I know concerning the nature of philosophy. An adequate

methodology for such a philosophy is still to be formulated. Fragments about methods can be learned from many classical and contemporary philosophers. But we need to become more critical and more selfconscious as to the dangers and the controls in this business of philosophical investigation. As we define our task more adequately, both as to the nature of our problems and as to the methods of investigation, we shall realize that each generation must make its own attempt to state its own philosophy. Philosophy is like all other knowledge in that it must constantly be treated afresh. And the fresh treatment will not deal merely with conclusions; it will attempt to state ever more adequately the nature of philosophy itself and the methods of investigation for philosophical problems.

A. P. BROGAN

THE UNIVERSITY OF TEXAS

FREEDOM, NECESSITY, AND MIND*

I FEAR that my title, and the subject-matter to which it refers, will be disappointing to some of the members of this Association. My title would indicate that I am not going to consider such a question, for example, as what the rôle of philosophy should be in the present economic, social, and political crisis, or any other immediately practical question. Philosophy doubtless does have a function, and an important one, toward the practical aspects of our life. That it does, I do not deny; but I am convinced that it has a still more important function than this, and that is to be thoroughly impractical. Accordingly, in this address, I shall not hesitate to follow this ideal, thus to incur, perhaps, the disapproval and adverse criticism of many of my auditors.

When I was officially informed that I had received the honor of being elected President of this Association, I began officially to consider what topic I should select for my address, for I realized that, although I should doubtless have many other duties to perform, that of writing an address was paramount. Accordingly I reviewed the presidential addresses that had been made before this Association since its founding, for I realized that, whatever else a president might do, he should at least not present an address on a subject which one of his predecessors had chosen. I had unofficially heard or read most of these addresses, but I now began officially to read them in order to discover whether or not anything was left for a new president to talk about. I also wished to ascertain, by a sort of inductive procedure, whether or not presidential addresses conform to any law or principle which differentiates them from the usual papers that are read at these meetings, as well as from published articles, or from chapters in a book. I must confess that I could discover no such principle. I hesitate to say, however, that, for that reason, presidential addresses are unprincipled. Yet they do not conform to any type or norm; some are general, others are specific; some are confes-

* The presidential address to the Eastern Division of the American Philosophical Association at Bryn Mawr College, December 29, 1932.

sions of faith, others, of doubt; some ask, What is philosophy about?, others, What about philosophy? Their titles and subject-matter are various, their conclusions manifold. Evidently a presidential address before this Association may be about almost anything, provided it is philosophical, whatever one may mean by this term (and it means different things to different philosophers), so that really there is a large range of possibilities before a president who is in search of a topic, for topics are not in search of presidents.

Scanning my list of former addresses so that I could exclude subjects on which my predecessors had addressed you, I set about to make a list of possible topics in order, in due time, to select one for myself. The result was that I thought of a considerable number. The presidential office is stimulating to its occupant. Some of those that came to my mind were: *Must a Realist be a Pessimist?, The Impracticality of Pragmatism, Idealism as a Naturalistic Philosophy,* but these I dismissed. Other topics were similar to those of my predecessors; still others were not suitable for the subject-matter of a presidential address, so I passed these by also. A few of those that I thought of will, perhaps, at some future time be discussed by my successors in this office.

One topic that perhaps very naturally emerged from this procedure was that of *Possibility* itself. Actual presidential addresses are but special cases from among many possibilities. Only because of this are presidents free to choose. So perhaps *Possibility* suggested *Freedom,* and *Freedom, Mind.* At any rate there slowly emerged from these considerations my preference for the topic on which I shall address you this evening. That topic is *Freedom, Necessity and Mind.* Alternative wordings for this are *Here and There in Philosophy;* also *Something, Nothing, and Everything;* also, *The Metaphysics of Discourse;* but for a number of reasons I retained the first title.

My topic may be considered timely because of current interest in the Heisenberg Principle of Indeterminacy, but it is not this Principle that has led me to select it. Rather, my interest is broader. It is in the general problem of the nature of Necessity, of Freedom, of Probability, and of Chance or Contingency. I shall ask and endeavor to ascertain *what* each of these is, but

perhaps the outcome of my endeavor will be that I shall give only a definition of each, and a definition, at that, which no one else will accept. I shall not ignore the Heisenberg Principle, but shall discuss it at least briefly, for I am convinced that there is much confusion as to just what this Principle means; but my discussion will not center around it.

Newton's First Law is that a body continues in its state of rest or of uniform motion unless acted upon by an outside force. The practical problem is to get a start. After that, things keep on moving. I think I may confess that what gave me the start in the considerations which are the subject-matter of this paper is the question or problem, *What is a Proposition?* But if this is the start, I trust that I shall honor Newton's law in the breach.

I find this question to be important, indeed basic, because I find that, no matter what position one may take with reference to it, *i.e.*, no matter with what solution one may issue for it as a problem, one really presupposes *but one solution,* so long as one investigates the problem and states one's solution of it by the methods either of ordinary or of highly specialized scientific discourse. The only alternative to this is, as Wittgenstein says,[1] to remain silent.

The one solution which I find is presupposed not only by the attempt to deny it, but also by any discourse, scientific, philosophical, or otherwise, that is *formulated by symbols,* is to the effect that *a proposition is distinct* (*a*) *from the symbols* by which it is formulated and which serve as a means of communication between minds; (*b*) *from the judgment* or conscious process which is an awareness of the proposition; and (*c*) *from the entities of which the proposition may hold,* or which make it *true* or *false,* namely, *nature.*

I am quite well aware that I have not yet established this position, but before I endeavor to do this, I may perhaps better convey my meaning and more clearly state my position by saying that I find it necessary to distinguish (*a*) what I call nature or existence, the realm of particular individual entities; (*b*) propositions, the realm of possibilities, of systems, of 'states of affairs', (*c*) symbols, which are themselves always physical, and so a

[1] *Tractatus Logico-Philosophicus,* Prop. 7.

special class of existent entities, and (*d*) awarenesses, which are also specific existent processes that may be directed towards either a proposition, or a group of symbols, or the realm of existent entities, or all three.

I may comment at this juncture that I am quite well aware of the distinction made by some authorities between *propositions* and *propositional functions,* and that subsequently I shall consider this distinction, but that, for the present, for reasons of simplicity, I shall use only the one symbol, *proposition,* to symbolize indifferently that which *ontologically* may be distinct, namely, *propositions* and *propositional functions.* But if there is this distinction, it is not at this point important.

On the one hand, as concerns my problem, I find that there is much confusion as to just what a *proposition* is, and, on the other hand, as concerns my definition, I am aware that it will not be accepted by all, perhaps by few, even by none. Some of my critics will prefer to speak of ' meanings ', others of ' significances ', —referring to the ' meaning ' or ' significance ' of our statements— but even then one must admit that ' meanings and significances ' *are,* whether or no they are in any way dependent on a mind. So perhaps I could discover a sort of one-one correspondence between possible opposed views and my own, thus to disclose a similarity or identity of structure, with the only difference one of terminology. What I am chiefly concerned with is, then, that I find forced upon me, by the method of exclusion, the acceptance of *a realm of meanings, significances, possibilities, propositions, and systems*—may I add, of *subsistents?*—that are distinct from symbols, judgments, and nature.

Although I am well aware that to cite or quote is not to prove, nevertheless the conclusions of others add support to one's own views, or at least give one courage in a world that is, perhaps, none too courageous. Accordingly, as elucidating my problem and as supporting the distinctions which I have made, I quote the following statements: " We can at least say that whenever a thought occurs to us it is about something. . . . What the thought is about is its *object,* and logic deals with *objects of thought* rather than with thinking, specifically with those *objects of thought called propositions.*" [2] " The *proposition* must be distinguished

[2] Eaton, R. M., *General Logic,* p. 7. Italics mine.

from the *sentence,*—the words or signs; from the *fact,* the actual situation whose existence renders it true or false; and from the *judgment.*" "The words enable us to entertain a proposition . . . ; the proposition is what the words mean and the fact is the locus of verification or falsification of this meaning in the real world." [3]

To the same point I next quote Miss Stebbing. Discussing 'If-then' as the sign of *implication,* and 'therefore' as the sign of *argument, i.e.,* as the sign of an asserted conclusion, Miss Stebbing says: "In order that we should be able to pass from '*if-then*' to '*therefore*', certain conditions must be fulfilled. These conditions are of two kinds. . . . One set of conditions refers to the propositions and the relations that hold between them. These conditions are independent of the thinker and are called . . . '*constitutive*'. The other set of conditions refers to the relation of the propositions to what the thinker may happen to *know.* These relations . . . are *epistemic* conditions." [4] And discussing the "constitutive conditions", Miss Stebbing says, "In order that the proposition q may be deduced from p, there must be between p and q a relation such that q is a consequence of p." "This relation is usually called implication." "Implication is a logical relation holding between the propositions. It is not a relation that holds between the propositions and the thinker." [5]

Finally I summon to my support Professor Cohen, who says "The dogma that all reality is sensory or can be apprehended through sense organs alone is as gratuitous as the assumption that all reality is audible, or that all reality is odorous. The fundamental paralogism of empiricistic systems is the argument that because I cannot by pure reason apprehend particular sensible existents, therefore all reality is nothing but sensation. One might as well argue that since I cannot through my sense of sight apprehend the hardness or softness of things, all reality is tactile and colors do not exist. Obviously, however, we have one phase of reality in sensory experience and one phase is apprehended through reason." [6]

[3] Eaton, R. M., *op. cit.,* p. 12. Italics mine.
[4] Stebbing, L. S., *Modern Introduction to Logic,* p. 214. Italics mine.
[5] *Op. cit.,* p. 215.
[6] Cohen, M. R., *Reason and Nature,* p. 197.

There is thus a clear distinction made by a number of authorities [7] between four different realms, namely, (*a*) nature, fact, or existence; (*b*) propositions; (*c*) symbols, such as words; and (*d*) judgments and knowing. Let us ask if these distinctions can be further refined. I think that they can be, and as follows, with the refinements concerning chiefly, if not exclusively, the difference between *propositions* and *propositional functions.* Modern logic, as is well known, recognizes this difference.

To illustrate and at the same time to make this distinction, let us consider the general proposition, *Everything in physical nature is mechanical.* This proposition may, on the one hand, be either *true* or *false* by reference to existence or nature, and I should say that, thus referred, it is false; but, on the other hand, it is a *value* of the propositional function, *x is mechanical,* which is of the general form, ϕx, in which ϕ symbolizes any predicate, x any subject. There is, also, another predicate ψ, and the propositional function ψx, and the possibility of the relation of implication between the two propositional functions, namely, that ϕx implies ψx, illustrated by the propositional function, *whatever has the property mechanical has the property of obeying the law of the conservation of energy, i.e., if anything is mechanical, it obeys this law.* This propositional function is itself, strictly speaking, neither true nor false. It is a symbolic statement of something that is not itself a symbol, but a meaning, a significance, *a state of affairs, a possibility,* of which I am aware. It is a 'something' that is consistent with, and possibly implicative of, other 'somethings', and perhaps inconsistent with still others. We might now assert that all physical nature is, as a matter of fact, mechanical, on the ground that this is the outcome of our investigations, and we have then transformed our propositional function into a general proposition which may be true or false. If it is true, it is always true; if false, always false. This last is itself another propositional function about a proposition, but about a 'something', a state of affairs, that is a reality—and I do not hesitate to use this last term—which is distinct both from the symbols for it and from my awareness of it.

[7] I should say that Royce also takes this objective position in his Essay, "The Principles of Logic", p. 72, in *The Encyclop. of the Phil. Sciences,* ed. by W. Wendelband and A. Ruge, trans. by B. Ethel Meyer.

We therefore find that a *proposition* and a *propositional function* must be distinguished; they are not identical; also that there is 'something' whereby the one may be *consistent,* the other *true* or *false.* The former condition is that of a specific relation to other propositional functions; the latter is what I call nature or existence, by some called 'fact'. Briefly stated, propositional functions are consistent or inconsistent with one another; propositions are true or false *by reference to nature.*

The scheme is this. There is nature, consisting of manifolds of individual entities. These entities *are related* in specific ways, and by virtue of this there *are true propositions.* But there are also propositions that are *false,* such as *Carbon is monovalent.* To false propositions nature does not correspond, but false propositions can nevertheless be 'entertained', considered, and even asserted, as, indeed, they frequently are. Since there *are* false propositions in this sense, *all propositions must as such be distinct from nature.*

I can, then, be aware of individual entities in nature, of true propositions, of false ones, also of the relations between these, and I can and do symbolize both true and false propositions. But I can also study propositions as such, whether true or false, *i.e.,* I can study their generic form, their relations to one another, and in so doing I pass to the realm of propositional functions. Here, again, I may study the relations of propositional functions to one another, I may discover that there are *propositional functions of higher order, i.e.,* propositional functions about propositional functions, and so on, those of *lower order* being, in each case, *values* of the arguments of those of higher order. The result is that I can discover a hierarchy of propositional functions—whether an "illicit totality" or not remains an open question.[8] But in doing all this I am, on the one hand, getting away from nature, while yet, on the other hand, I am dealing with a *subject-matter* (*a*) of which there is an awareness, (*b*) which is itself a realm of propositional functions, and, in some cases, also of propositions, but (*c*) with my own method of dealing with this subject-matter in turn consisting of propositional functions and propositions,

[8] *Vide,* Weiss, P., "Theory of Types", MIND, Vol. XXXVII.; Adler, M. J., *Dialectic;* and Buchanan, S., *Possibility,* for a discussion of this general problem.

and, finally, (*d*) with both subject-matter and means of dealing with it formulated in symbols. Thus I find myself in a predicament analogous to what Sheffer has called the "logocentric" predicament.[9] In order to examine propositional functions, propositions, and symbols, I *must use* propositional functions, propositions, and symbols, and *again* propositional functions, propositions and symbols, and so on, in a self-repeating series,[10] but in thus proceeding,—in the only way in which one can proceed, unless one remains silent [11]—one presupposes the distinctness of propositional functions, propositions, symbols, and nature. Indeed, I should go so far as to say that, if these distinctions be denied, then, in the examination of the subject-matter with which this denial itself is identical, these very distinctions will be presupposed. In fact I should insist that, whatever universe of discourse one may put oneself into by the use of symbolic language of any kind, one presupposes the distinctness of (*a*) the symbols, (*b*) the states of affairs, *i.e.*, propositional functions and propositions, (*c*) nature, and (*d*) the awareness of each of these and, *perhaps, of their relations to one another. These distinctions constitute, then, the inevitable metaphysics of discourse.*

One's purpose in examining that subject-matter which is indicated by such symbols as *proposition, propositional function, variable, value, argument,* etc., is to discover some of the characteristics of the *complex objective situation* that is symbolized by these symbols, and one outcome of such an examination is to assert that, while propositions may be true or false, propositional functions are themselves neither true nor false, but only consistent or inconsistent with other propositional functions. I ask, then, which symbol or term, namely, *true, or consistent,* one shall use to indicate the outcome of such an examination? Shall one say that it is *true* that propositional functions are neither *true* nor *false,* but only *consistent* or *inconsistent,* or shall one use the term *consistent* to indicate this supposed state of affairs? Usage is undoubtedly arbitrary, but should have the virtue of clarity and unambiguity, so I find that I prefer to limit the terms *true* and

[9] Review of *Principia Mathematica,* 2d ed., in ISIS, Vol. VIII, 1926, Brussels.

[10] *Cf.* Weiss, prev. cit.

[11] Which Wittgenstein did not do. *Op. cit., cf.* Prop. 7 and the *rest* of this work.

false to those propositions which can be shown to be true or false by the investigation of nature, and therefore to use the terms *consistent* or *consistent fact* for this other realm which is not part of nature, and which is also not identical either with the awareness of it or with the symbols for it. In accordance with my preference, then, I would say that a scheme or structure in which *propositional functions* in their relations to one another and to *propositions* are *consistent* or *inconsistent* (whatever other relations may subsist between or among them), and in which propositions alone are *true* or *false* by reference to nature, is itself a *consistent scheme of things, but one that is neither true nor false.* The *individual entities* that constitute the realm of nature are themselves, then, *neither consistent nor inconsistent, neither true nor false. They simply are.*

Such a scheme of things is at least *one possibility;* there are undoubtedly others, some of which would doubtless be supported by my critics. But even if, in these other schemes or possibilities, other definitions of, *e.g., true* and *false* are made and used, there would still be presupposed, I would maintain, *the same distinctions* as are present in my own scheme. In brief, I would maintain that the distinctions I have made must be present as distinctnesses in any universe of discourse whatsoever, even in that one which is itself *the universe of universes of discourse.*

The distinctions which I have made, and the definitions I have suggested, are made by other writers, but are not always consistently followed, and I may myself lapse from consistent and precise use of them, when such use is not necessary. Thus, for simplicity's sake, it may sometimes be advantageous to ignore the distinction between *true* and *consistent,* and especially that between *propositional function* and *proposition;* and when this is the case I shall not hesitate to say *true* when I really mean *consistent,* and to use the term *proposition* instead of *propositional function.*

One may ask, perhaps I ask myself, Why this examination of a subject-matter and of distinctions that concern the logician, in an address whose subject is Freedom, Necessity, and Mind? And I answer that I find I cannot examine the problem of Freedom and Necessity except on a basis that concerns the logician, and

therefore on the basis of the distinctions which I have made. My ulterior purpose is to investigate the problem of Necessity, Freedom, Probability, Chance, and Mind, and I have found that I could not carry on this investigation without asking and endeavoring to answer the question, *What is a proposition?*, and also, therefore, without the distinctions which I have made. I may say, then, that in what follows I accept as *established* the distinctness of (*a*) nature or existence, and, (*b*) the realm of propositions, of propositional functions, of systems, in brief, of possibilities. This second realm is for me real, whether it be called the realm of 'significances', of 'meanings', or—the term I prefer—of *possibilities*. Freedom, Necessity, and Chance, may be sought for in each of these two realms, *the existent and the possible*. Where in these two realms one finds Mind, and what Mind is, when it is found, and what does the finding, will appear in the sequel.

Logical Necessity

I shall carry on my search somewhat inductively, *i.e.*, I shall seek for instances of Freedom and Necessity in each of these two realms and in that larger realm which comprises the two together. Accordingly I realize that my program is an extensive one. To keep within bounds, I must, then, in many instances, leave many questions and problems that deserve further discussion. In proceeding inductively I shall follow the example of the inductive scientist, and avoid looking in the dark. Accordingly I shall let myself know what I am seeking by formulating certain preliminary definitions. Also, I shall not try to solve all problems; I shall isolate a few; and I shall be prepared to modify my preliminary definitions as a result of my research. In defining my terms I shall, of course, employ terms that I have not defined. These undefined terms I trust you will understand. I may add that my concern is with ontology, or cosmology, and not with epistemology.

I make a preliminary distinction between Necessity or Determination, Indetermination, Freedom, Chance or Contingency, and Probability, and set up the following tentative definitions.

I. *Necessity* is Determination, or Compulsion. It is of two kinds, *logical*, and existential or *causal*, in some sense of this term.

II. *Freedom* is absence of external determination. Freedom is always Freedom *from something,* namely, from external determination, but allows of self- or internal determination. If things have a nature, and act in accordance with this nature, they may be at once both internally determined *and* free, spontaneous, initiating. Whether or not there are any such things may be a question, but there is the possibility of Freedom in this sense both in the existential realm and in that of propositions.

III. *Absolute Chance or Contingency*[12] is the absence not only of external, but also of internal determination. Whether or not the term, as thus defined, applies to anything or not may be a question. There is also Limited Contingency. This is the absence of external determination, but the presence of internal determination under special circumstances that will be discussed later.

IV. *Indeterminism* is either Freedom or Contingency. It is the generic term for these two terms as specific. For the sake of precision the specific terms are preferable.

V. *Probability* is completely epistemic, not ontologic. In other words, there is no such thing as an ontologic probability over and above External Determination, Freedom and Contingency. Ignorance as to which of these is present in a situation may be the occasion for the use of the theorems of the *Theory of Probability* in connection with group-phenomena.

VI. *Indeterminacy,* as a special term employed by the physicists, I do not further define. The physicists themselves are not at all clear whether they mean by this term an ontological contingency, or a freedom, as I have defined these terms, or an external causal determination of whose ultra-microscopic details we are ignorant, but whose grosser manifestations can be known in accordance with the *Principle of Probability.*[13] In the last case *Indeter-*

[12] Professor Savery in his very interesting Presidential Address before the Pacific Division of the Amer. Phil. Assoc. does not seem to distinguish between Freedom and Chance, for he defines Chance as "absence of determination", p. 178, *Proceedings Amer. Phil. Assoc.,* 1931.

[13] This is one form of the *Principle of Indeterminacy.* The other form is the *Principle of Complementarity,* as illustrated by the fact that both the position and the velocity of an electron cannot at one and the same time *operationally* be ascertained. Measurement of one precludes coincident measurement of the other. I am here concerned with the first form of the Principle.

minacy is entirely epistemic. But if it is epistemic in this case, namely, on the basis of ignorance, then it would seem to be equally epistemic as regards the other two possibilities, namely, Freedom and Chance, so that it would be quite as illegitimate to infer, from what *is* known of group-phenomena, that there is either an ontological freedom or an ontological chance, as to infer the opposite, namely, a determination from without among ultra-microscopic entities. From the proposition, I do not know that x has the property y, one cannot infer the proposition, I know that x *has not* the property y. If one wishes to make the positivistic assumption of the *operational* method, that all that one can know are group-phenomena, one may do so, but one should then keep consistently to this assumption. On the other hand, if one assumes that one can not only observe but also extrapolate, then, if one infers that there is ontologically either freedom or contingency, one would be equally justified in maintaining that there is an ultra-microscopic causation. There is no more ground for identifying *Indeterminacy* with an ontological chance or even freedom than with a detailed causal necessity, or conversely. There is as much ground for the second identification as for the first. In any one of the three cases, the extrapolation cannot, by assumption, operationally be either established or disproved. The question whether one is justified in extrapolating can be settled at best only on purely logical grounds, and then we have the problem whether the *Theory of Probability*, as applied to group-phenomena, is compatible with freedom or with chance as I have defined these terms, or whether it implies ultra-microscopic causes, which cannot, however, be observed. But even here there seem to be no grounds for an unequivocal inference, for, on the one hand, Eddington,[14] for example, makes the statement that Indeterminacy is a "positive discovery about nature", and, on the other hand, Mackay says[15] that "the statistical conception of physical laws, far from dispensing with the old notion of causality . . . really presupposes this". Essentially agreeing with Mackay's statement, is that of H. C. Brown[16] that "if the electron in the atom can do anything, no statistics would be possible. The elec-

[14] "Indeterminacy and Indeterminism", ARIST. SOC., Sup. Vol. X, p. 176.
[15] *Univ. of Calif. Publications in Philosophy*, Vol. 15, *Causality*, p. 136.
[16] *Op. cit.*, p. 53.

tron cannot be granted more than a few alternatives of behavior, and this involves some limitations." C. D. Broad would seem to agree with MacKay and Brown,[17] for in his paper on Indeterminacy and Indeterminism (ARISTOTELIAN SOCIETY, Sup. Vol. X) he holds that Indeterminacy is epistemic.[18] On the other hand, Braithwaite, in his paper in the same volume,[19] accepts the ontological interpretation.

The conclusion to which I am led is that, if the *Principle of Indeterminacy* is *ontologic* and not epistemic, it can mean only either freedom or contingency as I have defined these terms, but that it is not a third alternative to these two. Indeterminacy as such, then, need not be further examined.

With these definitions before me I shall now begin to carry out my inductive research. I shall first turn to the logical realm. In this realm I find the following instances of Necessity.

I. *Implication. Implication is Necessity.* Discussion: Implication is found, in the literature, to be defined in five different ways; or five seemingly different kinds of implication are distinguished. These are, as is well known, the "material" and the "formal implication" of Russell and Whitehead, the "strict implication" of Lewis, the "intensive implication" of Eaton, and the identification of implication with "entailing" by Stebbing and Moore. The first three I reject on the basis of the criticisms which I think have been validly brought against one or all of them by such writers as Lewis, Eaton, Baylis, Moore, and Stebbing.[20] These criticisms seem to me to show conclusively that neither "material", "formal", nor "strict implication" means *necessitation.* No one of the three gives an ontological basis for *inference.* "Material implication" allows, *e.g.,* any true proposition to imply *any* proposition, true or false, and a true proposition to be implied by *any* false proposition. "Formal implication" is but generalized "material implication", and so is subject to the

[17] As would also Planck, *The Universe in the Light of Modern Physics, e.g.,* p. 88.

[18] Pp. 135–161.

[19] Pp. 183–196.

[20] Lewis, C. I., *Survey of Symbolic Logic,* in various places; Eaton, *op. cit.,* pp. 226 ff.; Baylis, C. A., "Implication and Subsumption", THE MONIST, July, '31; Moore, G. E., *Philosophical Studies,* "External and Internal Relations", pp. 284–291; Stebbing, L. S., *Mod. Introd. to Logic,* pp. 221–226.

same criticism. And the "strict implication" of Lewis is, according to Eaton,[21] guilty of the same paradoxes as is "material implication", so that an impossible proposition implies any proposition, and a necessary proposition is implied by any proposition. I can discover no relation of *necessity* in an implication so defined as to allow one to assert that *water is a compound* is implied by *automobiles are self-reproducing organisms,* or that *sugar is a carbohydrate* implies that *England went off the gold standard.* Accordingly, I accept implication as meaning *necessity* only in those circumstances in which it is identified with "entailing" (Moore and Stebbing) or with the "intensional implication" of Eaton.

"Entailing" and intensional implication *are the constitutive, ontologic condition, that p necessitates q,* so that *epistemically q* can be *inferred* from *p.* This is the usual, historical meaning of implication which Russell and Whitehead, and perhaps Lewis, have gone to an infinite amount of trouble to circumvent.

II. *Necessity* characterizes certain propositions which are implied or *presupposed* by their *denial* or, better, by their *negative* or contradictory. In contrast, an *impossible* proposition is one which implies its own contradictory. Thus the *necessary* is the negative of the impossible. In this sense the principles of logic are necessary, *e.g.,* the principles of *negation* and of *disjunction.* For the contradictory of these two principles is itself the *negative alternative* of these very principles themselves, so that this negative is self-contradictory, or absurd, or impossible.

I take this definition of the *necessary* from Lewis, *Survey of Symbolic Logic.*[22] A better, later, and more penetrating discussion is given by the same author in his *Mind and the World Order.* There, following a criticism of certain examples of "the supposedly self-contradictory", such as "the Epimenides", which he thinks is solved by Russell's *Theory of Types,* Lewis says: "There are propositions which are genuinely implied by their denial, and hence propositions whose denial leads to their affirmation." "All such belong to the class . . . called 'necessary'." But "such propositions implied by their own denial . . . are not thus proved true." "To see that this is so, we must first examine the nature

[21] *Op. cit.,* p. 233.

[22] Pp. 335–339.

of reaffirmation through denial. Whoever asserts a self-contradictory proposition does not in one and the same breath affirm and deny the content of his assertion. He affirms it in fact; he denies it by implication only. Or, to put it otherwise; he affirms it and the question whether he also denies it, is the question of what his assertion implies." [23] "Now the most obvious illustrations of such propositions whose denial genuinely implies them, come from the field of logic; in fact, they all belong to logic when that subject is interpreted in the rational way as including all purely formal truth. And the content of logic includes all principles of inference." [24]

"Whoever, then, denies a principle of logic, may either draw his own inferences according to the principle he denies, or he may consistently avoid that principle in deriving his conclusions. If one deny a principle of inference, but inadvertently reintroduce it in drawing conclusions from his statement, he will indeed find that he has contradicted himself and admitted what originally he denied. But if he denies a principle of inference and consistently reasons in accordance with his own statements, he need incur no self-contradiction whatever." [25] "It is a fact that for one who stands within a given system of logic, the denial of one of its principles will imply the principle itself. But this signifies nothing more profound than the fact that deductions in logic are inevitably circular. In deducing our theorems of logic, we must make use of the very principles which the deduction is supposed to demonstrate. If, then, I use 'bad' logical premises but 'good' logical reasoning, I shall contradict myself, quite as surely as if I used two premises which are mutually inconsistent." [26]

"Every good or correct logic, then, will be such that its principles are undeniable without contradiction; the denial of any one of them leads to formal inconsistency. But this is true only because so long as we remain within our system of logic, we shall use the very principle in question in drawing inferences from the denial of it, and thus beg the question of its truth." [27]

[23] P. 206.
[24] P. 207.
[25] P. 207.
[26] Pp. 207, 208.
[27] P. 208.

"A good logic must be circular." "All logic and pseudo-logic is similarly circular. A little ingenuity suffices to construct a bad logic in which, reasoning badly according to our bad principles, we always get consistently bad results. And if we deny one of these principles, still by sticking to our bad method of reasoning, we can reaffirm the bad principle in conclusion." [28] "Since a bad logic, whose principles are false, may still be such that the denial of any one of its principles will lead to its reaffirmation, it follows that the test of 'reaffirmation through denial' does not in logic prove the *truth* [29] of the principle thus reaffirmed." [30]

"It should be added, to avoid misunderstanding, that in spite of what has just been said, the test of self-criticism or circularity is a valuable test of any deductive development of logic. That the principles proved are precisely the principles used in a demonstration of them, is here a matter for congratulation. That the method of our proof coincides with the result of it, is the test of both method and result. It is not a test of *truth*, however; it is a test of formal or methodological *consistency*. The error of taking self-criticism to be a test of logical *truth* lies in overlooking the fact that a thoroughly *false* logic may still possess this merely methodological *consistency*." [31]

Lewis thus seems, as indicated by these quotations, to take the very interesting position that there are *alternative logics*, called respectively by him "good" and "bad", or sometimes, "true" and "false", and perhaps a number of each of these; that each of these —*i.e.*, both "good" and "bad" logic—starts with certain principles which are necessary to it as a system that is distinct from, and exclusive of, another system, and that each system is internally consistent. In other words, we have the *postulational method* applied to logics. *Necessary* here means, then, *necessary to*, and *necessity* is made *relative*.

However, I cannot let this position of Lewis's go without some criticism, since it seems to me that his fundamental dichotomy of good and bad logics involves something more than a "relativity theory" of *necessity*. For, on the one hand, good and bad logics

[28] P. 209.
[29] Italics mine.
[30] P. 210.
[31] P. 210; italics mine.

are logics, so that there would seem to be a *common factor* between them which is *logic as such,* equally and absolutely necessary to each. And, on the other hand, in order that there might be even only two logics, one good, the other bad or *not*-good, the principles of *negation* and of *disjunction must be.* They are not relatively, but *absolutely, necessary.* They are presupposed by their denial, which is the *negative alternative* to them. As Lewis suggests,[32] one may or may not "choose" to work out a bad logic as an *alternative* to a good one, but I would make the point that, if one does so "choose", it is *not a matter of choice* whether one abides by the principle of *negative alternatives,* or of *contradiction,* or not; one *must* abide by this principle.

In conclusion I should say that, although some logics may be bad or false, even though internally consistent and circular, and others good or true, with it, perhaps, a matter of doubt which is which, nevertheless there are certain logical principles, that, as the very logical condition for there being such *alternative* logics, are not only necessary, but *absolutely necessary.* Agreeing with my position I find Weiss saying: "Relativity in logic is relativity in notation or in the definition of implication. The fact that the familiar laws of logic (contradiction, excluded middle, etc.) are invoked to permit the discrimination between elements, values, functions, etc., points to an *absolute logic* over and above the symbolic statements." [33]

NECESSITY IN NATURE; CAUSE

I now carry my inductive procedure into the realm of existence, of nature, to discover there, if possible, instances of necessity. The existential world I define as the realm of reality that is correlated with specific times and spaces. It is the realm that is the special study of Astronomy, Mechanics, Physics, Chemistry, Biology, Psychology, the Social Sciences, and the like.

Causation I define as *existential necessity.* My problem is to ascertain, if possible, whether there is anything in nature that conforms or corresponds to this definition, and, if there is, in just what sense there is such a conformity or correspondence.

[32] *Op. cit.*, p. 208.

[33] Weiss, P., "Relativity in Logic", THE MONIST, Oct., 1928, p. 547. Italics mine.

Discussion:—I hesitate to embark on a discussion of a topic which has perhaps been the subject of more Doctors' dissertations than any other in the whole field of philosophy. Why should not a president fear to tread where so many budding Ph.D.'s have entered? But *Necessity* leads me imevitably to *causation,* and I *must* obey the categorical imperative. So causation I examine. But I shall endeavor to be brief. Brevity is necessary, even though I omit much that should be said. However, in what I say I shall endeavor to bring a little order into chaos.

In a recent volume on *Causality,* by the members of the Philosophical Department of the University of California,[34] the endeavor is made by some of the contributors to distinguish *causality, causation, cause, causal law, the principle of causation,* etc., but there is no uniform usage of these terms by these authors. Accordingly I am as free as were they to set up my own definitions of, and distinctions between, these terms; so of this freedom I take advantage. *Causation* and *Causality* I use interchangeably, and I shall apply 'concept' or 'principle' to either indifferently. Secondly, I shall speak of *Causal Laws* as specific instances of the *Principle of Causation,* and, thirdly, of *causal relation,* or of *cause,* as terms to denote the particular, individual instances of *causation in nature.* It is in this last that I am, of course, interested in my quest for possible instances of *existential necessity.* I agree with Pepper[35] that "causal relations are certain ways" in which "nature goes on", and that "they are not descriptions of these ways"; "they are the ways themselves". "The descriptions may be true or false." "But the ways are ultimate." My question is, What is the nature of these ways? Is there present in them *necessity?* My inquiry is, then, not essentially different from Hume's.

Now I have no hope of giving a final and conclusive answer to this question. None such has as yet been found. But what I would like to indicate is this: If one equates *causal necessity with causal determinism* (not logical), there are *three possibilities:* (*a*) a complete and universal causal determinism such as is defined, though not accepted, by Broad in his article, "Indeterminacy and

[34] 1932.

[35] *Op. cit.,* S. C. Pepper, "How to Look for Causality", p. 197.

Indeterminism";[36] (*b*) a partial determinism and a partial indeterminism, or a group of indeterministically related determinisms, giving, according to my definitions, either contingency or freedom,—a view taken one way or another by such authorities as Brown,[37] Mackay,[38] Broad,[39] and Stebbing;[40] or (*c*) complete absence of all determinism, giving complete chance or contingency, a view which, for example, Schlick[41] endeavors to take, but unsuccessfully, I think. It is evident that, if either the first or the second possibility is true, there is *causal necessity*. This does not have to be universal in order to be present in nature.

Just what, now, are regarded, by at least some writers, as those characteristics of the causal relation that would seem to involve the presence in it of *necessity?* It seems to me that, when causation is defined, for example, by Meyerson[42] as "identity"; by Alexander[43] as "continuity between events and substances"; by Loewenberg[44] as "inward activity" and as "dynamic intimacy"; by Mackay[45] as "production" ("a cause is that which is necessary and sufficient to produce"); by Schlick[46] as "order"; by Lenzen[47] as an "efficacy which is ignored but not denied", causation is really maintained to be a relation that is essentially one of *necessary connection*. This means, for me, that, if I say that *x* causes *y*, it would be impossible for *x to be or to happen*, and *y not to be or happen*, and conversely. It does not mean, however, that *causal necessity* involves temporal sequence, or irreversible order; repetition or uniformity; or contiguity; but it does mean that it is more than mere "predictability" (Eddington,[48] Dennes,[49] and Schlick in certain places), mere "calculability" (Schlick[50]),

[36] Arist. Soc., Sup. Vol. X, pp. 136–137.
[37] *Univ. of Calif. Pub., Causality*, 1932, pp. 41–66.
[38] *Op. cit.*, pp. 129–144.
[39] *Op. cit.*, pp. 135–161.
[40] *Modern Introduction to Logic*, pp. 257–291.
[41] *Univ. of Calif. Pub., Causality*, pp. 99–125.
[42] *Identity and Reality* (English translation by Kate Loewenberg).
[43] *Space, Time and Deity*, Vol. I, pp. 279–281.
[44] *Univ. of Calif. Pub., Causality*, p. 27.
[45] *Op. cit.*, p. 139.
[46] *Op. cit.*, pp. 109–111.
[47] *Op. cit.*, p. 80.
[48] Arist. Soc., Sup. Vol. X, pp. 167–182.
[49] *Univ. of Calif. Pub., Causality*, p. 175.
[50] *Op. cit.*, p. 119.

mere "uniformity" (Stebbing [51]), and mere "correlations", "functions" and "descriptions" (Russell [52]).

Some of these characteristics, namely, predictability, calculability, *mere* correlations and functions, are, *as such*, epistemic, and not ontologic, yet in many cases they are acknowledged to have an *ontologic basis*. This is what, for example, Schlick really does in the following statements: "The mathematician assures us that he has no difficulty in constructing analytical functions which, with any desired degree of approximation, will represent any succeeding states of a system, however chaotic it may be. This proves that we cannot identify Law with functional relations; for if *any sequence* of events can be described by functions, then the possibility of such a description cannot be used to distinguish an *orderly or causal sequence from a chaotic or non-causal one*. The principle of causality would always be true." [53] We conclude that 'possibility of calculation' cannot simply mean possibility of description by functions; *something more is needed*. It is usually thought that what is needed is some kind of *specification* of the functions, so that the laws of nature must be defined by functions possessing some special property." [54] Schlick then proceeds to find out what this "special property" is. He says: "Instead of inventing definitions of Law, which always prove more or less artificial, we must direct our attention to the way in which a scientist tests a formula in each particular case and tries to verify whether or not it represents the law for which he is looking. He first constructs a function by connecting all the observed data. His success in finding a function is not a sufficient and not even a necessary reason for him to be convinced that the Law is found. He will proceed to apply it to *new* data, which have not been used for the construction of his formula. If observation shows that the function fits the new data he will triumph and believe that it expresses the real Law." [55] Continuing, Schlick says: "Now at last we know what is meant by the 'possibility of calculation' which we found to be the essence

[51] *Op. cit.*

[52] *Mysticism and Logic*, p. 180; *Philosophy*, p. 118.

[53] *Univ. of Calif. Pub., Causality*, p. 117; italics mine.

[54] *Op. cit.*, p. 117; italics mine.

[55] *Op. cit.*, p. 119; italics mine.

of causality or 'determination'. It does not mean possibility of finding a function with particular mathematical properties, but it means possibility of *applying* a function with *any* properties to such data as have *not* been used for its construction. The technical term for this procedure is 'extrapolation', and so we now say that in science *causality stands for possibility of extrapolation.* From the way in which we introduce the term 'possibility' it is clear that it implies correspondence with . . . *reality.*" [56]

To be sure Schlick finds that in such a procedure "the vague notions of cause and effect have been replaced by the more precise concept of mathematical function".[57] "So science does not speak of causes and effects, but of functional relations between measurable quantities; it starts with measurement of quantities rather than with description of occurrences. And it seems to be the essence of every law of nature that it states the way in which the values of some quantities measured at certain places and times *depend* on the values of some other quantities measured at certain other places and times." [58]

In criticism of Schlick I must say that thus to use the term 'depend' is, for me, but to lug in by the back door what has been thrown out at the front. For although we may give up "the vague notion of cause and effect", nevertheless, if the values of some quantities *depend* on the values of other quantities, we have, in essence, *necessary connection.* It means, to use Stebbing's formula, that, if there is one specific value of one variable, there must and can be *one and only one* specific value of another correlated variable, that all other values of these variables are impossible within the range of the possible values of the argument of the function. This means at least *a limited ontologic* deterministic system, or, as Schlick himself says, that "*Causality belongs to nature*".[59] The fact is that Schlick's paper is a mass of confusion of the epistemic with the ontologic. He blows hot, and he blows cold. But such is Positivism whenever it shows its head.

It may very well be—in fact I should be inclined to grant that

[56] *Op. cit.*, pp. 119–120; italics mine.
[57] *Op. cit.*, p. 111; italics mine.
[58] *Op. cit.*, p. 111; italics mine.
[59] *Op. cit.*, p. 114; italics mine.

this is the case—that the *criterion* of causality for the more exact sciences is, as, for example, Schlick and Lenzen describe it, the discovery that certain variables are correlated in a certain way, giving an equation which is of such a character that one can successfully calculate, predict, and extrapolate, but this is only the *ratio cognoscendi.* It should not be confused with the *ratio essendi,* even in those cases in which, as the physical process of measuring becomes more refined, it becomes impossible to measure accurately, because of the influence of the physical process of measuring on the thing to be measured. This is but to give up an *ontologic causality* on the basis of such a relation itself. A more egregious fallacy could hardly be imagined.

The foregoing is a description of one point of view. It is the view that *causality is necessary connection* in some form—identity, continuity, inward activity, production, order, efficacy, functional dependence, and the like, and that its *esse* is distinct from its *cognoscendi.* This does not mean that causality in any of these senses is universal in nature. There can be, and the evidence is that there are, isolated causal systems, systems each of which is causally or functionally related internally but not so related to other systems. This means that there is both determinism within and freedom or chance without. Determinism within, *i.e.,* self-determinism, consists of a manifold, within a system, of entities each of which is determined from without, but with the system itself not so determined.

The extreme opposed point of view to the one just considered is that of the " nothing-butters ". This view is represented, among recent writers, by Stebbing and Dennes. Stebbing says: " What is peculiar to the causal relation is not any characteristic of necessity, . . . but the reference to determinate characters . . . that are related by recurrent modes of change ".[60] For her, causality is *nothing but* this kind of recurrence or uniformity. For Dennes [61] it is, likewise, *nothing but* the fact either that a particular ϕ is followed by a particular ψ, or that it is possible to predict (with a certain degree of probability) that if other particular ϕ's occur, they will be followed by ψ's. For him, then, there is

[60] *Op. cit.,* p. 288.

[61] *Univ. of Calif. Publ., Causality,* p. 75.

no necessitation in nature; there is only fact. And finally, for Russell, causality is *nothing but* functional relations among variables as formulated in the equations of the physicist.[62]

In comment on these views I may say that, while I can conceive that a so-called causal relation should be *nothing but a sequence,* or a *recurrent sequence,* nevertheless, even if this were the case, causation would still be *ontologic,* although it would contain no element of necessity. But that causation should be *nothing but prediction, nothing but a formula* expressing a so-called functional relation of *mere symbols,* I cannot understand. I cannot understand, since, on the one hand, *to predict* would seem to mean *to predict something,* and, on the other hand, *symbols* are distinct, as I have shown, from that which is *symbolized;* this last is an *objective state of affairs* that may be true or false. And if it is the former, there are at least uniquely and reciprocally determined values of functionally related variables *in nature,* even if there are no causal sequences, repetitions, or contiguities.

In all this discussion—of discussions of causality—I must again confess that I cannot see that we have advanced very far beyond Hume's problem whether *necessity* can be observed in nature or not. Some writers—and they are in the majority, I think—seem to think that it can be; others, that it cannot. Undoubtedly one can *define causality as meaning necessary connection,* and build up a logical system in which this definition is an integral part. That has been done historically. But this does not mean that such a system is *true.* It may be impossible operationally to show that it is. But, on the other hand, perhaps it cannot operationally be shown to be false. It remains, then, *a logical possibility,* quite as consistent as the opposed assumption, which likewise cannot operationally be shown to be either true or false. But what I protest against is the conclusion that, because this causal view cannot operationally be shown to be true, it is, *therefore,* false, and that its contradictory, that of an indeterministic theory in the sense either of freedom or contingency, is true. If we are to be positivistic, then, if possible, let us be so consistently, and not blow first hot and then cold.

I can understand, then, the point of view that denies any

[62] "On the Notion of Causality", Proc. Arist. Soc., N.S., Vol. XIII, p. 15.

observable causal necessity and accepts only observed ontologic correlations and recurrences. Yet I find myself under no compulsion to accept the premises of this operational point of view. I am quite free to start with opposed assumptions, which allow me logically to infer, or to extrapolate, causal necessities beyond, and even as implied by, what is operationally observed. But in last analysis I am not concerned with this controversy. I am really, in this address, discussing *meanings*. And so I conclude as follows:

I. If causality is defined as meaning *necessity* or *necessary connection* there are the following typical instances of it.

(1) *Descriptive causality*, illustrated by the series of successive stages in the development of a fertilized egg. *Descriptive causality* is used by Biology, History, Psychology, etc.,—all sciences in which little measurement is possible. In *descriptive causality* we have sequence, contiguity, and *external compulsion*—determination from without. For example, in the development of an egg-cell each stage is the effect of the preceding stage and stages; or, the property ψ at one time is the effect of the property ϕ at a preceding time.

(2a) *Explanatory causality.* In Classical Dynamics there is the similar concept of *external compulsion.* Thus, for example, when a body falls freely in the earth's gravitational field the cause of its acceleration is the mass and position of some other body. Similarly there is external determination when one body hits another. If, however, in the first case, we consider the earth and the falling body to be included in a single system, there is mutual action or reaction, yet there is still external compulsion. The acceleration of the falling body is produced by the earth, the acceleration of the earth by the falling body. If such a system of two bodies were isolated, then, *as isolated,* the system would be *free from external compulsion,* it would be self-determined, at the same time that between and among its parts there is *external compulsion.*

Whether there are in nature such isolated systems may be an open question. Classical dynamics holds that there are not. But classical dynamics is open to much criticism on this point, and may be false in this respect.

(2b) *Explanatory causality.* In a complex system, consisting

of a finite number of variables that bear specific functional relations to one another, these relations being expressed by the law of the system, specific values of any $n-1$ variables *necessitate* one and only one specific value of the remaining variable. It is for this reason that interpolation and extrapolation are possible.

II. *Conversely, if causality is defined as meaning, not necessary connection,* but only *mere predictability,* or *mere sequence or uniformity,* or, perhaps, *mere correlation,* it is evident that there is a *contingency* not only between, but also *within,* systems themselves. Absence of external determination, but presence of internal or self-determination, is freedom—freedom from something. But absence of both external and internal determination is *chance.* It is possible that we live in a universe of complete and *absolute chance* (1) in which, although we predict, nothing either verifies or falsifies our predictions, but these just *happen* to be verified or not; or (2) in which there are sequences, with, however, no ontological order in sequence as such; or (3) in which there are correlations of variables, but with these correlations, and the unique and unequivocal one-one relations of any specific set of values of the variables *merely so many symbols,* symbolizing nothing ontological or objective. This view may be possible. But if it can be *logically defended,* then, *as a possible system, it is a logically determinate state of affairs,* a set of propositions whose denotation is a world of chance. But, further, if, ontologically, nature is completely tychistic, and yet we deal with it by means of predictions, sequences or correlations, or all three together, using as the basis for our predictions the correlated variables of the *Theory of Probability,* then, as between these variables, which are *not* mere symbols, but objective states of affairs, there is a determinateness that constitutes a self-determined system. Whether the *Theory of Probability,* as a system of propositions or equations some of which are related implicatively, is consistent, in respect to that to which it refers, with groups of entities having themselves no determinate nature whatsoever, and, as regards one another, being under no causal compulsion from without, is an open question. If there is such consistency, then it may well be that the only necessity that is real is logical in character. If there is not such consistency, then

there must be ontological necessity in nature, although this need not be universal or operationally observable.

However, in this address I am not concerned with a defense of either of these two views. The partial or even complete reign of necessity, either logical or causal, or both, is no better, by any norm which I find myself under any urgency to accept, than a completely tychistic universe. But I am interested in meanings—the meaning of necessity, freedom, and contingency. These I have defined, and then I have sought for instances of them in *reality*. Necessity is found, in the logical realm, in the case of *implication* and of *presupposition*. It may also be in nature. It is compulsion from without. But there are *systems* of such compulsions, each system, both logical and existential, being, *as a system*, free from external compulsion. Some of these systems are *free from* one another, others are *contingent* as regards one another—a refined difference that I shall examine shortly. Even if there are no such systems in nature they can nevertheless be defined.

It is, then, to the consideration of *systems*, and to the *criticism* and possible *limitation* of both logical and causal necessity, that I now proceed. *Such limitation constitutes either freedom or chance*. I shall first examine logical necessity in order to find, if possible, *logical freedom* and, if the term is not self-contradictory—which I do not think it is—*logical chance*.

Logical Freedom and Logical Chance

Into this realm, of Systems and System-Structure, of Possibility,[63] I again enter with some trepidation. It is a realm that presents many exceedingly difficult and recondite problems and challenges one to extremely technical and precise investigation. Concerning it there is hot controversy. However, for the purposes of this address I do not find myself obliged either to participate in this controversy or to employ to any great extent the technical terminology of the controversialists. I have but a single purpose in mind, namely, to search for what I call Logical

[63] Lewis, C. I., *Survey of Symbolic Logic*, p. 333, says: "Any set of mutually consistent propositions may be said to define a 'possible situation' or 'state of affairs'."

Freedom and Logical Chance. The position that follows may meet with disagreement—it probably will—even with severe criticism. This I shall invite.

I may further preface my discussion with the reminder that in what follows I assume the distinctions already made between symbols, judgments, propositional functions and propositions, and nature. I am here concerned especially with propositional functions, propositions, and systems of these, and all of these I regard as quite as real as nature, only they do not exist. I may symbolize these non-existent realities by the term *subsistent*, although, as I have said before, I do not mean by this anything substantival.

I introduce this special discussion by the *dictum* that the *existent* presupposes the *possible*, and the *possible*, the *necessary*, which means, by my previous definition of 'presuppose', that the *necessary* is *necessary to* the *possible*, and the *possible* to the *existent*. Of course I do not hold that this *dictum* enables one to *deduce*, from what is necessary, what is possible, nor, from what is possible, what is actual. Yet the *dictum* may furnish a clue to what is necessary.

The logical concepts which I regard as necessary to the realm of possibilities, or to the kinds of system which I shall discuss, namely, deductive systems, are *negation, conjunction, disjunction, identity, presupposition,* and *implication.* Only if there *are* these entities can there be alternative 'logical' possibilities; therefore, to deny these entities, and *deductively* to support one's denial, thus to assume another possibility, is to *presuppose* them. These entities are the generating principle of all alternative deductive systems, even of such as, for example, Lewis proposes and calls good and bad logics; for bad logics are *not* good, whatever else they may be, and good logics are *not* bad; also, any logic is *either* good *or* bad, *or neither;* and, finally, good and bad logics *presuppose* logic.

However, in essential agreement with this position, Lewis himself asks: "What kind of experience could defy the principle that everything must either be or not be, that nothing can both be and not be, or that if x is y and y is z, then x is z."[64] And Weiss asserts: "The most important point to note in connection with

[64] *Mind and the World-Order*, p. 246.

Systems, is that they are possible only because logic has been assumed. The laws of logic make possible the assertion of the laws of logic, and the derivation of some laws from others. The specific laws of identity, contradiction, excluded middle, determine every part of a system, and make it possible for substitution and inference to take place. The conditions involved in the development of systems transcend the system, and the laws of logic must be assumed before they can be deduced." [65]

However, this point, that deductive systems, as constituting a realm of possibilities, presuppose certain ultimate logical entities which in this respect are *necessary,* is one that I do not need to stress. Rather I would emphasize in this paper the study of what I call the *matrix* of such systems. Such a *matrix* will be the scheme of the relationships that subsist between distinct systems of different orders.

First, then, let us consider what is the structure of a deductive system itself, and afterwards examine the possible relationships of deductive systems to one another.

In regard to the first problem I abstain from certain controversial questions, and present what is rather orthodox doctrine. I am aware that there are many further refinements that I cannot consider.

I. *A deductive system* consists of propositions or of propositional functions that are not derived from other propositions or propositional functions, and of definitions in which terms are defined by terms that are not defined. Such unproved propositions and propositional functions are *postulates.*

II. *Postulates and definitions* imply ("entail") *other propositions,* which, accordingly, may be deduced.

III. All the propositions of a system must be *germane,* to use a term of my own. *Germaneness* means belonging to the same system, or to the same family of systems. *Compatibility* is not a sufficient condition for a system, since two compatible propositions can have as *loci* two different systems. This point I shall discuss further, shortly. Thus, in a geometrical system, all postulates and definitions must be *germane* in the sense that they must be of such a character as deductively to give, not a theology, nor a game of cards, but a geometrical system.

[65] Weiss, P., "The Nature of Systems", reprinted from THE MONIST, p. 72.

IV. The *postulates* and the *definitions* of a system must be *independent, i.e.,* they must not imply one another. Independence is disclosed by the well-known 'independence proof'. Of this more anon. Only some of the propositions of a deductive system can be independent. Independence is *conjunctivity.* Insofar as a system is more than conjunctive it may be said to be *coherent.* Some coherent systems are at least partially *implicative,* others not. *Non-implicative coherent systems* are exemplified in certain works of art.

V. A system must be *consistent, i.e.,* the propositions of the system must not contradict one another. It would seem, however, that, at least in certain cases, to establish consistency is a difficult task.[66]

VI. A system is *sufficient or complete* if, by means of the initial terms and propositions, all other terms and propositions can be respectively defined and deduced. "Completeness makes possible the exclusion of theorems which may conform to the principle of consistency."[67]

VII. Some systems—a few, perhaps only systems of logic, if there is more than one—are *circular,* most are *linear.* Systems of logic are circular in that, to quote Lewis,[68] "in deducing our theorems of logic, we must make use of the very principles" that are deduced. Linear systems do not do this.

In presenting this list of the characteristics of *deductive systems* I may say that I have in mind, as an example, the three well-known geometrical systems of Euclid, Lobatschewsky, and Riemann, but not these alone, for there are also alternative systems in Astronomy, Biology, Psychology, Mechanics, Dynamics, Chemistry, Christian Theology, Ethics, and in Philosophy itself, although it may be that not all systems in these different fields have as yet been shown to conform perfectly to all the norms of a deductive system. There are, possibly, *an infinite number* of deductive systems, only a very few of which have been formulated by mankind, as suggested by the realm of existent things.

Let us now consider what I have called the *matrix* of deductive

[66] Weiss, "The Nature of Systems", p. 68, distinguishes three kinds of consistency.

[67] Weiss, *op. cit.,* p. 71.

[68] *Mind and the World-Order,* p. 207.

systems, *i.e.*, the scheme of the relationships of systems of different orders to one another. In deriving this *matrix* I find that the generating relation is the *formal principle of contradiction*, or of *negation*, according to which for every x there is *non-x*. But, whatever x may be, I find that *non-x positively* may be any one of three things, namely, what I shall symbolize by α, β, and γ. In one case, in which *non-x* is α, x and *non-x* may co-subsist in the same system and the one imply the other. This is always the case where p implies q, for q is *formally non-p*. In the second case, in which *non-x* is β, x and *non-x* may co-subsist in the same system but not imply each other. The independent postulates of a system illustrate this. But x and *non-x* (β) may also be in *different systems* that nevertheless are *compatible*. This is illustrated by *color* and *extension*. *Color* is *non-extension*, and *extension* is *non-color*, yet a color-system and an extension-system are compatible, as are also a particular existent color and a particular extension. Color-systems and extension-systems are two distinct families. They are *contraries*. Thirdly, there is the case in which x and *non-x* (γ) cannot subsist in the same system, but are in two distinct systems of the same family. This is illustrated by the fifth, the parallel-postulate of Euclid, and the corresponding proposition in Lobatschewskian geometry. Such systems are *contradictories* in the strict sense of this term. They are *mutually exclusive* or *incompatible*. *Only systems of the same family are mutually exclusive*. Systems of the same family have common factors which together constitute a *meta-system*.

But systems are related not only as *consistent* and *inconsistent*, *compatible* and *incompatible*, or *exclusive*. There are also *systems of systems*, so that two systems may be related to each other, one as *subordinate*, the other as *meta-* or *superior*. Thus, for example, there are two mutually exclusive systems of Evolution, the one, that of *continuity*, the other, that of *discontinuity*, and, as sub-systems of the former, there are, in turn, the two theories, the *Neo-Lamarckian* and the *Neo-Darwinian*. *Subordinate* and *meta-system* are, formally, *non-x* and x, and conversely; yet (1) the two are compatible, (2) the meta-system does not imply the subordinate system, and (3) each subordinate system presupposes the meta-system.

Paradoxically, then, formally contradictory "things" or terms can be compatible in three ways: (*a*) within the same system, whether independent of or implying one another, as illustrated by the postulates, definitions, and theorems, of Euclidean geometry; (*b*) between the system of two or more different families; for example, Mechanistic Biology and Behavioristic Psychology; and (*c*) between subordinate systems and superior system, for example, good and bad logics (Lewis), *and* Logic. Then, (*d*), distinct from such compatibility, is the *incompatibility* of two or more *mutually exclusive systems* of the same family.

Such is in part the *matrix* of deductive systems. The *matrix* is itself a *System of systems,* but it is not a deductive system, neither is it exclusive of any of its parts, nor coördinate with, subordinate to, or a superior to, any of these. In other words, the *System of deductive systems* is not a member of itself. It is, then, as a System, unique, *and* contingent. The common factors constituting the intension of the system of deductive systems are the principles of logic. These principles, which would be common even to good and bad logics, constitute a circular system. In order to deduce them they must themselves be used. Opposed to the System of deductive systems is *the formally contradictory System of non-deductive systems.* This System also is not, as a System, deductive. But as a System of *non-deductive systems* it is also unique and contingent. The System of these two systems, if it is to be called a system, is again not deductive; it is at once conjunctive and disjunctive; in it there are present only the logical principles of *disjunction, conjunction,* and *negation,* but not the principle of *implication* in the sense of "entails".

We are now in the position to answer with precision the question with which we started, namely, *Is logical necessity limited,* and can one find *logical freedom* and *logical chance?*

If A, B, C, D, and E, are a set of independent initial propositions (postulates and definitions) of a deductive system, with these initial propositions implying others (theorems), and if the system is *sufficient,* and *internally consistent,* then:

(1) The system is *internally determined, i.e., self-determined.*

(2) It is *free from* all external determination by all others of the set of *mutually exclusive systems of the same family,* and each

independent proposition is free from determination by others, since such independence is absence of implication. In this sense the Euclidian, Lobatschewskian and Riemannian geometries are, each of them, at once both *logically self-determined and logically free.* But in this family of systems, in their relation to one another, there is no *logical chance or contingency.* For the mutual freedom of the systems is *limited,* at the same time that their mutual exclusion is conditioned, by the fact that they are geometries of a spatial manifold that is of definite uniformity. This characteristic is *necessary to* each of them. *Necessary to* them, also, are the constituents of the systems of higher order.

(3) *Logical chance* or *contingency* subsists between two or more distinct families of systems, for example, between the family of systems that are possible interpretations of chemical data, and the family of systems that are possible interpretations of biological data. Any two systems of two distinct families are not mutually exclusive; they are compatible; one and the same particular individual entity can belong to both, *i.e.,* it can be at one and the same time, in our example, both chemical and biological. All systems, then, within the totality of the system of deductive systems, are at once *self-determined* and *free,* but some of them are more than free; they are *contingent* in the sense defined. Such contingency is, however, *limited,* since *all* such systems are characterized by those factors in virtue of which they are *deductive.* The ultimate contingency is, then, between the two *totalities,* of *deductive* and *non-deductive* systems respectively. These two totalities are not mutually exclusive, but compatible. Particulars that belong to each of them can co-exist. Thus a painting, as extended, is an instance of a deductive, spatial, system; as a combination of colors with esthetic value it is an instance of a non-deductive system. Particular extension and particular color are *absolutely contingent* and not merely free, and so, likewise, are extension-system and color-system. Contingency in such cases is *symmetrical.*

But there is also *asymmetrical contingency.* This subsists between a subordinate and a meta-system, or between species and genus, or between the argument of a function and its values. Such a situation subsists if, for example, there are two kinds of logic, or two systems of organic evolution, namely, the *Darwinian*

and the *Lamarckian,* that are both theories of *continuity.* The next higher meta-system of two or more subordinate systems, *and* these systems, are not exclusive of one another, but are compatible; but, from the standpoint of the subordinate systems, the meta-system is necessary, while conversely, from its own standpoint, the meta-system is free, and the sub-systems are contingent. Each sub-system is, however, exclusive of the other sub-systems, and at once *both free and self-determined.*

There is, then, in the realm of deductive systems, not only *logical necessity* and *logical freedom* but also, paradoxical as it may seem, *logical chance or contingency.* Logical necessity is *implication* and *presupposition;* and logical freedom and logical contingency subsist in a number of different circumstances.

Freedom and Chance in Nature

I now continue my search for instances of *freedom* and *contingency* in the realm of nature or existence. Are *freedom* and *contingency* to be found here as well as in the realm of systems, of possibilities? The answer to this question is to be obtained, not by considering the structure of systems and the relationship of systems to one another, but by *empirical evidence.* On this point, however, as has been found in the discussion of *causality,* opinion is divided, and I see no way of definitely settling the issue. One can construct only hypotheses.

I have before me the *matrix* of systems. In this *matrix* there are *determination from without, self-determination, freedom,* and *contingency.* The actual or existent must, however, conform to the possible, but it need not conform to *all* the possible. Nature could not conform to the *whole matrix* of systems and to *all* systems, for some of these are mutually exclusive; it could, however, conform to *a number of* systems each of which is but *one* of a *family* of mutually exclusive systems; or, finally, it might conform to *one and only one* system of one and only one family of mutually exclusive systems.

However, I find no evidence at all for the truth of this last supposition. Even if nature were, for example, *completely mechanical* in the *Newtonian* sense of this term, it would nevertheless conform to at least *three* systems: (1) the system of Euclidean

Geometry, (2) the system of logic which this geometry presupposes, and (3) the specific mechanical system called *Newtonian*. In this situation, however, both ***freedom*** and *contingency* are present. From the standpoint of the logical, the distinctly geometrical is contingent, and, from the standpoint of the geometrical, the mechanical is contingent. But each of these last two is in turn free; the mechanical, by virtue of its *specificity*, is free from the *limitations* of both the geometrical and the logical, and the geometrical is free from the *limitations* of the logical.

But there is also freedom in another respect. The logical is free from the *specificity* of the geometrical, and the geometrical in turn is free from the *specificity* of the mechanical. There are, then, both *asymmetrical contingency* and *asymmetrical freedom* present in this situation.

Nature might, then, be a completely determined system as regards the relations of mechanical entities *to one another*—each mechanical entity being determined mechanically from without—and yet *all* mechanical properties as such, in relation to space and to logic, be contingent. My analysis would seem to show that this is the case, and there would be a quite analogous situation if it were found that nature was completely *electrodynamic* instead of mechanical.

However, I find no support from science for the position that nature belongs to *just one* such system. Rather, science shows that nature belongs to a *matrix* of systems, some of which are mutually *exclusive* of one another, while others are, though formal contradictories, really quite *compatible* with one another. Compatible systems are in some instances related as *coördinate*, in others as *subordinate* and *superior*.

Nature belongs to formally contradictory, yet compatible, systems by virtue of different characteristics which it is found by science to possess. To take a concrete example, not too technical, yet accurate, a living cell has those characteristics by virtue of which at one and the same time it belongs to *the system of physics*, *the system of chemistry*, and *the system of biology*. The cell is really quite as distinctly living as it is either distinctly chemical or distinctly physical, and conversely. It is no more and no less one of these than the other. Yet biological, chemical, and physical

characteristics are not identical; each is *not* the other two; nevertheless they are compatible. Accordingly, these three characteristics of the cell conform, in their relations to one another, to my definitions of *freedom* and of *contingency*. The biological is determined at its own level. It is, *as biological*, a self-determined system. The biologist can and does find distinctly biological causes for distinctly biological effects.[69] This is an example of what I have called descriptive causality. Likewise the chemical and the physical are each a self-determined level. The chemist finds distinctly chemical causes for distinctly chemical effects—for example, all pure *organic* chemistry is based on this principle—and the physicist, distinctly physical causes for physical effects. Yet in these two realms we find what I have called explanatory causality tending to displace descriptive; not so much causal sequences as functional relations of variables are sought, with the result that causality takes the form of a unique and unequivocal determination between the specific values of the variables of a functional whole.

The physical, the chemical, and the biological, present, then, the following relationships: the biological from, as it were, the standpoint of the chemical is contingent, and the chemical is, in turn, contingent from the standpoint of the physical. But the biological from, as it were, its own standpoint, *i.e.* as distinctly biological, is *free*—free from the limitations of both the distinctly chemical and the distinctly physical. A quite analogous situation holds between the chemical and the physical. What we have here, then, is *three distinct deterministic realms indeterministically related to one another*, and such indeterminism is at once *both freedom and contingency*. A living cell is not exclusively either biological or chemical or physical. It is *all three, and more*, for it is also geometrical, temporal, mathematical, and logical. It is determined, then, not in one way, but in many; but the several determinisms are related indeterministically to one another. What the cell does, its activity, is a product, as it were, not of one vector, but of a number. No one vector is paramount. This means that a living cell acts in a way in which it would not act if it were not living, and that the outcome of the physical and chemical processes

[69] As illustrated by all descriptive embryology and genetics.

present in it is different from what it would be if the cell were not alive. If the same principle is applied to a being that is rational at the same time as it is perceptive, emotional, living, chemical, etc., it means that reason counts in the behavior of such a being. In each of these cases, not only does the lower strike up, but also the higher strikes down, so that the outcome is a vector-sum of a number of qualitatively distinct vectors.

All this means—to me—that, even if it be granted that all of nature belongs to a *causal* system, *i.e.*, that the Principle of Causation holds for the whole of nature, one cannot deduce from this the particular type of causation that holds in any particular case, and much less find that there is only one type. But if there are different types of causation some of them may be mutually exclusive and others quite compatible, so that, between different types, there is freedom or contingency or both. The Principle of Causation becomes, in more specific form, Causal Laws, and Causal Laws are not instances of one another, but subsist side by side either as mutually exclusive of, or as compatible with, one another. In the *matrix* of such laws there is *freedom* and *contingency*. No concrete entity can be causally determined simultaneously according to two causal laws that are mutually exclusive,[70] but it can be so determined according to two or more causal laws that are compatible.[71]

But the Principle of Causation may be postulated, specifically different Causal Laws may be formulated, Causation in general may be defined as *necessary connection*, and specifically different Causal Laws may mean qualitatively different kinds of *necessary connection*, and yet it may be that nature conforms to no part of such a system. That this is the case, or that it may be the case (in which instance it may also *not* be), seems to be the view of those who maintain that science is *mere* predictability, or calcula-

[70] As an example we have the classical law that velocities can be added, and its contradictory, that they cannot be. Both laws cannot be true for one and the same realm of existent entities, but each can be true provided there are exclusively different kinds of entities, namely, moving masses and light. The classical law applies to the former, the contradictory of this to the latter, which means *the principle of the constancy of the velocity of light.*

[71] For example, the descriptive laws of biology, the partially descriptive and partially functional laws of chemistry, *and* the functional laws of molecular and atomic physics.

bility, or the observability of sequences and regularities, or measurability, whereby functionally related values of variables are obtained. This is the position of what I have called the "nothing-butters". It means that nature may ontologically be a realm of *absolute chance or contingency,* with no instances either of determination from without or of self-determination.

If this be the case, I am quite indifferent. I do not find that an ontologically completely tychistic nature is any worse than one that is only partially tychistic, nor is it better. 'Worseness' is what 'worseness' does, at its own level, or in its own realm, and likewise with 'betterness'. I do find, however, that in such a completely tychistic nature there would be *no freedom,* if freedom means the freedom of the *self-determinate* from external determination—and this is one definition. But, as has previously been said in criticism of this tychistic position, to go beyond the strictly operational and observational level, and merely *assume* an ontological tychism, is quite as gratuitous as it is to make the opposite assumption, that there is at least *some* ontological determinism. And further, the criticisms have been made (1) that this absolute and complete tychistic view of nature can itself be rationally defended only by a set of propositions that constitute a deductive and, therefore, a logically determinate system; (2) that the *Theory of Probability,* which is sometimes applied to such a tychistic world, is itself such a logically determinate system; and, finally, (3) that there is some question whether the *Theory of Probability* does not itself logically necessitate at least a partial determinateness in that to which it applies.

SUMMARY

I may now summarize the results obtained thus far, and then pass to the consideration of the rôle played by *mind* in a universe which has the structure that we have been presenting, and in which there are *determinism, freedom, and contingency.* Mind may seem not yet to have appeared to any great extent in the course of my considerations, but it will now begin to emerge. Submergence becomes emergence.

After a preliminary discussion which led to the conclusion that symbols, judgments, propositions, and existents, are not identical,

and which emphasized the ontological distinctness of the realm of existents and the realm of possibilities, states of affairs, systems, I undertook to make certain preliminary definitions of *freedom, necessity, chance, indeterminism, and probability,* in order to be intelligently guided in my search for instances of these. The result has been not only that *necessity, freedom* and *contingency* have been found in both realms, but also that our preliminary definitions must be, at least in certain cases, slightly modified or qualified.

I. There is *logical necessity*; it is of two types, *implication* in the sense of 'entailing', and *presupposition* in the sense of 'necessary to'. There is much evidence, also, that there is *causal necessity* in some sense. Common to both types of necessity is *compulsion from without* or *external determination.*

II. There is *logical freedom*; freedom is always *freedom from something,* namely, *from external determination.* It therefore allows of *internal determination.* It subsists in *four* distinct sets of circumstances: (*a*) between mutually *exclusive* systems of the same family; (*b*) between *coördinate, compatible systems of different* families; (*c*) between a meta-system and its subordinate systems; (*d*) between the *specificity* of a subordinate system and the *limitations* of its meta-system. In the first two cases freedom is *symmetrical,* in the last two *asymmetrical.* There is also, even if there is causal necessity, *causal freedom.* Since the existent conforms to the possible, such types of causal freedom as are found in nature must conform to one or more of the *four* types of logical freedom above enumerated. There is evidence that there is existential freedom of all four types, *i.e.,* there are instances of all four types of freedom.

The common factor in freedom of all types and instances is *freedom from external determination,* and the possible presence of *internal determination.* Freedom in this sense is the core and essence of what is known as *Agency, Spontaneity,* and *Initiative,* wherever and whenever these are present.[72]

III. *Contingency* is of two kinds, *limited* and *absolute;* it subsists both in the realm of possibilities and in nature. Two logical

[72] I would maintain that it is the search for and acceptance of freedom in this sense that characterizes the philosophy of Kant and of Transcendental Idealism.

systems, each self-determined, are *limitedly contingent and also free* if they are sub-systems, not of the same meta-system, but of *two different meta-systems.* Such contingency is *symmetrical.*

But there is also *limited or asymmetrical contingency.* Two or more mutually exclusive systems are, as sub-systems of the same meta-system, not only free from one another, as regards the specific determination of each, but also free from the limitations of the meta-system. Yet in respect to these limitations they are under compulsion. The contingency of the specificity is therefore limited. Also, since the meta-system is at once both necessary to the sub-system and free from its specificity, such contingency is asymmetrical. Finally, there is *absolute contingency.* This means total absence, not only of external determination, but also of self-determination. There is no such contingency in the realm of deductive systems, for all such systems are internally determined. Absolute contingency can subsist, therefore, only in realms where there is no deductive system as such. It must be confined, then, either to non-deductive systems or to the realm of particulars *as particulars, i.e.,* to nature, and we have seen that it is an open question whether there is evidence that leads to its rejection even in this realm. But if universal contingency be rejected, empirical research would nevertheless seem to indicate that there is some contingency in the existent world.

Disclosure, Mind

How, now, does Mind enter this scheme of things? What is the connection of Mind with Contingency, Freedom, and Necessity? To make this inquiry is to ask for the meaning of the complete title of my address. My answer to this inquiry will be unorthodox, for it will not identify Mind with *consciousness,* or with *soul* or *ego,* transcendental or otherwise, much less with *behavior, integrated conditioned-reflexes,* and the like. Some of these may be the antecedent conditions of Mind, but they are *not* Mind. My thesis is that Mind is correlative with the fact in the universe of what I call Disclosure; that, further, whether there is consciousness or not, *there is* Disclosure, *i.e.,* that Disclosure is logically prior to consciousness, the assumption of consciousness being but one possible hypothesis to explain Disclosure; and,

finally, that, from the evolutionary point of view, Disclosure has emerged as a function of Freedom, but that, in relation to what precedes it, it is *contingent.*

My thesis has been stated to a certain extent in evolutionary terms—in terms of emergent evolution at that—but it is also to be stated and elaborated in other terms, the two statements being complementary to one another. This second, non-evolutionary statement is an account of what Disclosure *is,* and this account is to be obtained by the analysis of my own procedure up to this point. I ask myself, What are the implications of what I find to have been taking place in the course of the analyses that constitute the subject-matter of this paper?

In evolutionary terms my thesis is that *there is an emergence of many freedoms; the free* is that which is both 'free from' *and* self-determined; but that which is free is, from the standpoint of that which precedes it, *limitedly contingent.* Thus the biological is, as we have found, *as biological,* free from the limitations of the chemical; the chemical, *as chemical,* free from the limitations of the physical, etc. Conversely, given the physical, the chemical is, in its evolutionary appearance, *contingent;* so also, given the chemical, the biological is *contingent. Contingency* is the condition, as it were,—not the cause—of the emergence of *self-determination and freedom; freedom and self-determination* are in turn, the characteristics of that which thus emerges. But the further one proceeds in the series of *contingently emerging freedoms, the more extensive is the freedom, since, with each step in the series, there is more to be free from.* In this respect the biological is *more free* than the chemical, and the chemical *more free* than the physical.[73] But, though the chemical is free, it is not Disclosure; nor is the biological; neither is behavior, and I am not sure that consciousness is Disclosure.

Disclosure emerges *when and only when there is freedom from everything* or from anything, so that Disclosure is, as it were, *complete and absolute freedom and also complete and absolute self-determination.*

What does, what can, this statement mean? I derive my answer

[73] I recognize the similarity of my position here to Bergson's, but I am stressing a factor that he does not stress, and there are other differences.

to this inquiry by developing further the analysis with which the preceding part of this paper is identical. Perhaps this means that at this point I *analyse my own analysis,* to develop its further meaning and implications.

What I find I have been doing is that I have been presenting, in some of its major outlines, a sort of ontological map of the universe. I have been doing this by the use of word-symbols, typewritten on the pages I am reading to you. But, *by my own analysis,* these symbols are symbols *of realities, and symbol and symbolized are not identical,* but distinct, so I am quite *consistent with my own analysis* when I maintain that the symbols I have been using refer to something that has *ontological status.*

I have specifically been in search of instances of Freedom, Necessity and Contingency, and in this search I have journeyed through a realm which, though not admitted by all, is nevertheless widely accepted, namely, the realm of logical possibilities, identical with the realm of logical systems of many kinds. These systems have been considered, it must be admitted, only in outline, nevertheless the typical relationships of these systems to one another, giving what I have called the *matrix* of systems, have been examined. But search has been made for *freedom* and *necessity* not only in this realm, but also in nature. And finally it has been suggested that, in contrast with the System of deductive systems, there is also the System of non-deductive systems, comprising, perhaps, the esthetic and ethical realms.

It would be of interest to elaborate in great detail this entire *ontological matrix,* to map it, as it were; but for my present purpose this is neither necessary nor possible. For that purpose it is only necessary to ask and to answer the question, *What does the construction of such a map involve or even presuppose?* My answer is, that it presupposes, since not only the particular parts of the map, but also the various parts in their relations to one another, and, therefore, the map as a whole, are *disclosed,* that, *over and above, and distinct from, that which is mapped, there is something else. This something else is Disclosure. It is neither the whole map, nor any part of it, nor any relation of any part to any other part or to the whole or of the whole to any part, for these are what is disclosed. Briefly my argument is that if some-*

thing is disclosed there must be Disclosure. Disclosed is not only the whole, but also the parts, the character of each part, the relation of the parts to one another, and to the whole, and of the whole to the parts.[74] But this means—and here I think that I beg no question by using the personal pronoun—that I can and do put myself into any one system, to allow my thinking to be determined by the structure of that system, but also that I can and do take myself out of that system, and put myself into some other, whether it be mutually exclusive of, compatible with, superior to, or subordinate to, the former. In other words, I can and do free myself from the specific determination of any system, thus to allow myself to be determined by the structure of some other. But not only this. I can, indeed I must, put myself in part outside of any two systems, if I am to discover the relationship of the two to one another. Also, I can put myself quite outside the whole System of deductive systems and into that of non-deductive systems, or, in turn, I can go beyond all systems as such to nature, as well as from nature to systems. That I do this, that I am thus free, is a fact. If it were not, the analysis I have made would be impossible. One is indeed free either to analyse or not to analyse. There could be no analysis if there were no freedom, but there *is* analysis, so that there is Disclosure of the analytical type.[75]

Seemingly, then, there is *complete freedom,* but not, in this case, the freedom of one system from another, but, rather, the freedom that is involved in discovering that one system is *free from* another, or *contingent* as regards another, or *necessary to* another, etc. Only if there is *this specific freedom* can the map be constructed.[76]

[74] Royce's well-known illustration of a "self-representative system" in the Supplementary Essay to Vol. I of *The World and the Individual* exemplifies what I mean by Disclosure. The "Self-representative" character of the System *does not include* the Disclosure that the System *is Self-representative.* The Disclosure is not itself any "proper part of the system, nor is it the whole System; it is quite distinct from both, quite 'outside' both." One can speak quite impersonally, saying, *It is disclosed* that the system is "self-representative", so that, whether there is an 'I' or not, consciousness or not, there is Disclosure.

[75] In this very analysis at this point *it is disclosed* that there is another type of Disclosure, namely, the intuitive, the mystical, the non-analytic type.

[76] Broad, in his paper "Indeterminacy and Indeterminism" (prev. cit.), pp. 103–104, takes a position similar to mine at this point. *Cf.* also my Essay, "The Walls of the Past", in *What am I?*

But if this freedom is taken advantage of, and the map is constructed, there must be Disclosure. Freedom is the condition for Disclosure, or, conversely, Disclosure results from the use of Freedom.

Although I have used the personal pronoun, I would insist that Disclosure does not necessarily involve or presuppose an 'I' or an Ego. For if, on investigation, it was found, as some claim to be the case, that there is no ego, this itself would be what is disclosed, and there would certainly be Disclosure. I likewise maintain that Disclosure is not to be identified with consciousness. For if, on investigation, it were found, as, *e.g.*, the Behaviorist claims, that there is no such thing as consciousness, or if, as I think possible, a self-contained system can be worked out in which consciousness is not *a constituent term,* there would still be the Disclosure, for the Behaviorist, *of this system,* and of the *non-reality* of consciousness. The Behaviorist may, then, deny consciousness without presupposing it, but he cannot deny either consciousness or Disclosure without presupposing Disclosure. Disclosure is not, then, the same thing as either *ego* or *consciousness. It must be, even if they are not.*[77]

But, if Disclosure is neither *ego* nor *consciousness,* may it not be Mind? I answer: I may identify it with Mind, but, if I do this, it is still as much Disclosure as it is Mind, and I have gained little if anything by the identification. Or I may reason that, if there is Disclosure, there must be *something* to which there is the Disclosure, and that this is Mind. But again, *the antecedent fact is Disclosure,* and to assume Mind in order to explain it is but one hypothesis, which I find myself under absolutely no compulsion to make. In fact, I find myself quite free to make the contradictory alternative assumption, that there is Disclosure and no Mind. In either case Disclosure is the logically and ontologically antecedent fact. *It is, whether Mind is or not.* Contingent in its origin as a function of complete Freedom, once this has arisen Disclosure is, in its functioning, completely self-determined. In this respect, if not in others, it is unique.

[77] Personally, I can accept, under certain conditions, both an ego and consciousness (*Cf.* my Essay "What am I?" in the Volume of Essays with the same title), only neither one is, in my opinion, *presupposed* by Disclosure.

Mind, then, which for a time was submergent, and then began to emerge, now seems somewhat to disappear again, so that there are left only Freedom, Necessity, Contingency, and Disclosure.

And yet, as I have said, I am under no compulsion to give up Mind. Whether I do or not depends on how I wish to think. On the one hand, I may choose to think in purely *functional* terms. If I do this, then, in general, I find that ***anything is what it does. Life is what living things do, the chemical is what chemical things do, etc.*** In accordance with this point of view, then, Mind is ***identical with a realm of specific activities which are the practice of Freedom resulting in Disclosure.*** But, on the other hand, I may choose to think *substantivally,* and then I assume that, in order to explain what things do, there must be a *substantival entity* that will in each case 'explain' this activity. It is the choice, as it were, between a verb without a subject and a verb with a subject. I think that the choice is entirely arbitrary, but to say this is to say that there is again *disclosed* to me *just what I am doing.* I *find* that ***I am free to think either substantivally or not.***

I must confess that I discover no advantage in thinking substantively. In fact, in the case under discussion, there would doubtless be a one-one correspondence between the two ways of thinking. But of the two I prefer the non-substantival. Exercising this preference, I should say that, stated in evolutionary terms, there has been a series of successively emerging, qualitatively distinct, *activities and ranges of freedom,* each *contingent* in relation to what precedes, with, finally, ***that specific activity emerging whose specific freedom is to disclose anything.*** This specific activity corresponds to that which in the *substantival system* is Mind. But in this system Mind ***is not consciousness; it is the step beyond.*** Consciousness is not wholly free; Mind is.

Conclusion

This, then, is my account of Freedom, Necessity, and Mind. I do not, however, claim that it is true. Indeed, by that very system with which my account is itself identical, it could not be this. Yet, also, I would claim that it is not, for that reason, false. I can only urge that it is *consistent,* and consistency transcends both truth and falsity; logically it is free from them, and

they are contingent. But, although I would claim that my account has this virtue, I have little hope that there will be many among my hearers who will agree with what I have said. If there are any who perhaps agree, their agreement will, in all probability, be due to the fact that they are not philosophers, and so have not understood.

Only those who are philosophers will, I fear, by any chance have comprehended by meaning, but they, having done this, will doubtless disagree. This, however, sounds worse than it is. It merely means that, if one is a philosopher, one disagrees, not because of perversity, but as a matter of principle, *i.e.*, one disagrees in the sense of entertaining the alternative possibility for the purpose, at least, of examination and criticism. Disagreement in this sense is perhaps the very heart of the philosophic method. For this reason, then, I may say not only that I welcome disagreement but that I shall be disappointed if I do not receive it.

But, though I would thus seem to invite disagreement, I nevertheless find that those of you who disagree must do this in either one of two ways. Either you must merely assert that I am wrong, and give no reasons why I am, or, disagreeing, you must make *a reasoned defense* of your disagreement. And if you do this last, then I shall maintain that, although you disagree explicitly, you nevertheless agree by tacit presupposition. For in making a rational defense of your disagreement, in giving reasons for it, you will presuppose that your defense *as such* is neither a *mere* set of symbols nor a *mere* series of judgments, and certainly not an account of nature, but that it is a state of affairs with *ontological status*. Your own reasoned account or system will be a *symbolized* set of *propositions* or of *propositional functions*, or both, some of which will be independent of one another, and others of which will be related implicatively. You will *freely* put yourself into this system by initial postulation (tacit or explicit) and definition, and let yourself subsequently be *determined rationally* by these original propositions. Thus, disagreeing with, you will (endeavor to) free yourself from, my system. But you will nevertheless presuppose, as concerns the structure of your own system, not only those very *distinctnesses* which constitute part of my system, namely, the *distinctnesses of symbol, judg-*

ment, proposition, and nature, but also the *internal logical necessity or self-determination* of your own system, and *the ontological freedom of the specific self-determination of this from the specific self-determination of my system.* You will thus, in disagreeing with my system, in denying it, and in giving a reasoned defense of your own disagreement and denial, only be reaffirming the very distinctnesses which you deny. You will, also, not only presuppose and employ the very ontological Necessity, Freedom, and Contingency, which are the constituents of my own theory, but also presuppose Disclosure—the Disclosure not only of the structure of your own system and of mine, but also of the relation of your system to mine, and of both systems to a meta-system. And there will be this Disclosure whether you have, or are, a Mind, a Consciousness, an Ego, or not.

It is evident, indeed, self-evident, that this is both a long and a very theoretical address. It is, however, an address that is *very* theoretical, not because it is a theory, but because it is a *theory about theories, an analysis of analyses.* Indeed, I might say that it is not only very theoretical, but *very very* theoretical. It is this because it is not merely a theory about theories but also a *theory about opposed theories.* I have therefore kept my promise, made at the beginning, that I should be as impractical as possible. As a result I seem to have reached Impracticality to at least the third degree. But perhaps I should not have chosen a topic that would lead to so much theory. It may be that by some criterion —although I do not know by what—a more orthodox, or a more practical, subject would have been better, or at least preferable. But since there is, ontologically, not only Necessity, but also Freedom, I have taken advantage of this and made my choice. For it I have no apologies; only for the length of time that I have taken to address you do I make amends.

EDWARD GLEASON SPAULDING

PRINCETON UNIVERSITY

MIND—AN EVENT IN PHYSICAL NATURE[1]

IT has been generally characteristic of philosophers to show great respect for the history of their subject, and rightly so. Their problem is not, like the scientist's, to extend the boundaries of factual knowledge or to replace inaccurate knowledge by more accurate. Possible philosophic positions are limited in number and probably have all had representation in the course of philosophy's history. They represent attitudes toward living based on a reflective consideration of human problems, and on human experiences with ideas that have become accepted as knowledge. Hence philosophies must be continually rewritten, and the reflections of any contemporary philosopher will in the end become the reassertion of a philosophic mode, novel, if at all, only in the degree that he assimilates new scientific knowledge and brings to greater maturity reflections thereon as relating to the problems of his time. Not all types of philosophy, however, are equally suited to the intellectual and social pattern of a given period, and it is quite possible for a philosopher to exalt or to conspue a possible position without regard for its present propriety. To seek a philosophic interpretation of life and the world through a now inappropriate philosophic mode of approach is like the proverbial opening of an oyster with a rolling pin. Philosophic progress is not so much a breaking with tradition as a re-discovery of tradition, or rather of neglected possibilities within the framework of a tradition.

From the time when Darwin reëstablished the concept of evolution as basic in the biological sciences, the gap between man and beast, and between living and non-living nature, has been steadily narrowing until the intellectual pattern of our sciences has come to believe in the generation of life from matter as a peculiar dynamic state of it, and of mind from the organism as somehow a peculiarity of organic functioning. Against such a scientific background traditional substantive accounts of mind, like those of

[1] The presidential address to the Pacific division of the American Philosophical Association, December 28, 1932.

Anaxagoras or of Descartes, make us somewhat uncomfortable. We recall that the medicine men of primitive peoples extract diseases from their patients and transfer them to other men or to inanimate objects, as if diseases were substantial things, whereas the modern physician recognizes disease as a derangement of organic functioning, and we are led to wonder whether the 'thingness' of mind may not be like the 'thingness' of disease. And yet we may also be ill at ease before the Watsonian curt dismissal of mind in favor of forms of implicit behavior. Is the only alternative to return to the witchdoctor type of thinking?

History presents us with two other plans for the development of the concept of mind: on the one hand, there is the Aristotelian-Hegelian tradition of mind as a sort of directive force or energy, and, on the other, the materialistic tradition from Democritus, Lucretius, and Hobbes. The former is gaining great success in contemporary philosophy. I need only cite Bergson or Whitehead as examples. For many the scientific catch-phrase 'the reduction of matter to energy' seems to sanction this tradition; but here we are troubled by echoes of Auguste Comte's law of the three stages, and we come to wonder about the metaphysicalization of forces or energies. After all, if we inspect scientific procedure carefully, we find that energy is always an attribute of things, bodies, particles, or at least vibratory waves. To be sure the physicist tells us nothing about the stuff that vibrates except how it behaves and what changes always occur in the neighborhood of localized vibratory conditions. He abstracts process from stuff as we might abstract a grin from a face. If the face vanished existentially, however, leaving only the grin, we should comment with Alice, "Well! I've often seen a cat without a grin, but a grin without a cat! It's the most curious thing I ever saw in all my life!" So is a world of mere energy.

Mind as an energy or effective principle, then, is either a force-entity or the hypostasis of an abstraction. When our physical sciences are purifying themselves from the belief in force-entities it is awkward to support a concept of mind implying them. Yet, on the other hand, to follow the other alternative and accept the term mind as denoting an hypostasis merely, is philosophically to follow the radical behaviorists and admit that "we find no mind

in our laboratories". There may be experimental advantages in this latter position, for it is more useful to find out specific characteristics of human behavior than everlastingly to invoke intangible forces and energies, but it is likely to leave in the philosopher's stomach a growing hunger that is more than mere behavior.

This something more than behavior must find its place in a philosopher's theory; for, contrary to popular opinion, the philosopher is the most concrete, instead of the most abstract, of all thinkers. His boasted aim to see the world as a whole is not an aim at abstraction but at grasping the full significance of the concrete in a way the scientist cannot permit himself to do. No mass, angle, and coefficient of friction for him can replace the fact that an elephant is sliding down a grassy slope, with all its implications of risibility to the beholder, irritability to the elephant, and destructivity to the slope. When the psychologist tells him mind is behavior, he replies, yes, but I have feelings and emotions, images, and ideas, and while these may occur in the course of behavior, and vary with varying behavior and perhaps modify behavior, they are not themselves *mere* behavior, any more than the physicist's substitute for the elephant's procedure is the elephant, the flattened grass and the abraded rump, that are its concurrent incidents.

There remains then the materialistic philosophic tradition from which the problem of mind may be approached. This at least has the advantage of furnishing a substantive basis for mind, and is not without possibilities in accounting for its behavioristic aspects. Yet at first sight, in history, materialisms have been the weakest of all these points of view both in explaining the character of the behavior we call mental and in furnishing a plausible account of the content or stuff aspect of mind. The former difficulty may be perhaps explained through the lag in anatomical and physiological knowledge that has characterized the groping progress of our sciences, but the latter is harder to explain. Although the word mechanism, unless washed out to the pallid meaning of lawful, no longer needs to be taken as synonymous with scientific explanation and so loses much of its sting, and although the process of conditioning and our dawning knowledge of endocrine-gland functions greatly aid in the physiological understanding of behavior,

we are advanced by them no step toward the understanding of the content aspect of mind.

Nevertheless, I believe that in the line of the materialistic tradition is the best hope for such understanding, but to attain it materialism must be completely rewritten. The most favorable starting-point for such rewriting is a consideration of the nature of language itself. It would take us too far afield to consider fully the origin of grammatical forms and the prejudices they tend to foster as to the nature of the experience symbolized by them. For our purpose it is sufficient to note that the distinction between the noun and the adjective is not necessary, since there exist languages in which it is not made, but that its utility arises from the fact that the noun enables us to select a region of reality in which we are interested, and the adjective the aspects of that region in which we are at present interested. The scientifically minded will recall that vibratory theories of matter have taken away from us the possibility of thinking of particles of matter as independent entities and reduced them to regional conditions of some primitive *physis* of which the particularity (materiality in the narrow sense) is an attribute just as truly as color or shape is an attribute of material things. The noun is, then, while logically substantive, ontologically as adjectival as the adjective. Actual reality, or the *physis* of things, is the only objective substantive, and is material in the extended sense of the term materiality.

It happens that reality is so constituted that regions of this physical reality, or *physis,* can be viewed analytically as aggregates of smaller material regions, adjectivally material particles, and their form of union can be expressed as relations. That relational words represent something physically actual is proved by the case of isomerism in chemistry, where the same numbers, kinds and proportions of atoms, in different relations, constitute different material objects, which they would not do if relations were merely speech-forms. This structured character of physical reality has turned out to be peculiarly pertinent to the problems in which the scientist is interested. Hence he exalts the notion of structure and its derivative, quantity, and the notion of relation as denoting the actual character of structure. Since the adjective denotes a selection within a selection, it is easily taken as denoting some-

thing less real, and especially, since science has won its successes by attending to the structural and quantitative, it easily slips into the belief that only the primary qualities, or structure-defining attributes, are objectively real.

The first step toward the rehabilitation of a theory of mind in line with the materialistic tradition must be the abjuration of this prejudice. We use the word material in two senses: in the broader sense it means having substantive character and applies to all reality (even a dream or an imagining has a substantive character as a state of an organism), and in a narrow sense it means a limited spatial region of reality having the more specific characteristics connoted by such terms as proton, atom, molecule, or mountain. But all of these terms are adjectival toward the region of the *physis* they denote, and the meaning of the name applied to them is derived from their effective connections with the rest of reality, of which more anon. The material, in the restricted sense, is also qualitied. What science really does is to select certain occurrences by their qualitative aspects and analyse the concurrent structure. It thinks that it is not concerned with quality because it uses quality only to locate problems in structure and quantity, although no physicist can so much as state the difference between an electron and a proton without reference to quality. What the physicist is really proving is that every qualitied region of reality has its unique structure and that the structure never occurs without the quality nor the quality without the structure. Thus he is establishing a sort of dualism, not a dualism of mind and matter but of two aspects of the material world.

The identification of physical objects may therefore be through either approach, the structural or the qualitative, and the meaning of the occurrence of the object may be attached to either identification. Science has found the structural approach the more profitable, daily living usually prefers the qualitative. That is, we say that our coffee is too sweet or the room is too warm, and not that our coffee should contain one gram less $C_{12}H_{22}O_{11}$ or the average velocity of the molecules of the air in the room should be slowed down to some specified rate, although precise action might prefer the latter formulæ. Both structural and qualitative differences may be so slight as to escape the powers of direct ob-

servation. The scientific approach also has the advantage that structural and quantitative conditions can be indirectly recorded by the aid of apparatus in a way the qualitative cannot. There is, therefore, only an argument from analogy to support the belief that there are in reality many more qualities than are dreamt of in our sense-experience, but I believe the argument is justified. The continuance of the materialistic tradition will break from the old by insisting upon the renouncing of the distinction between primary and secondary qualities in favor of a conception of matter as objectively qualitied with no ontological distinctions as to the status of primary and secondary qualities.

The argument for the subjectivity of sense-qualities is at least as old as the sophists, but I think it is based on a fundamental misunderstanding of the nature of perception. Hence I shall burden your patience with a recapitulation of its main points and a statement of what I consider plausible answers to them.

Let us first look at the arguments for the subjectivity of color-qualities. In the first place be it noted that the physicist analyses the physical regions to which color is attributed as not merely those in which light-waves are present but as involving the impinging of these waves on a material surface of such a nature that it refracts some waves but not others.[2] Of course a cloud of dust or water particles may replace a solid surface, but material structures are always involved. In the physics of color-sensation refracted rays are focussed upon the retina of the eye, and what color is seen depends directly on what happens at this point. If the lighting of the object is changed, or the angle from which we view it, the effects on the retina are also different. Physically color should not be the same under different physical conditions; so, on the hypothesis that the object is really colored, the retinal color should correspond only on the condition that the same physical condition is produced in the retina as in the object. This will not happen if an object like colored glass or mist intervenes, or if a disturbance of the transparent parts of the eye interferes with the passage of light-waves. That such incidents do modify color-vision is a proof

2 "The most elementary examination of what light means in terms of direct experience shows that we never experience light itself, but our experience deals only with things lighted." P. W. Bridgman, *Logic of Modern Physics*, 1927, p. 151.

of the objectivity of color, the retina being also an object, rather than of its subjectivity, although it does imply that we may and often do attribute to objects colors that they do not have. It is dialectically possible to assert that we never do see colors as they really are. The question is, theoretically at least, open to empirical proof—that is, if it could be shown that the light-waves impinging on the retina are quantitatively identical with those refracted from the object, and the consequent physical retinal processes similar to those on the surface of the object, the qualitative identity of the retinal color with that of the object would follow. This may be a rare happening.[3]

To see qualitative colors involves discriminating them, but the possibility of discriminating them depends upon a nervous mechanism capable of responding differently, or through different nerves, to different retinal conditions. In colorblindness there is always some retinal defect, perhaps the lack of a substance responding to color-frequency; hence the effect of, say, red illumination is to stimulate nerve-paths no different from those stimulated by green-producing light of the same intensity; and since conscious awareness does not occur without potential differences of response to differences in the so-called conscious content, we should have the effects of colorblindness, *i.e.* no awareness of a difference between red and green.

Before we approach difficulties involving spatial perception there is another long recognized sensory paradox that requires comment: the fact that water may seem warm to one hand and cool to the other, where, of course, the water can hardly of itself be both.

[3] In the case of binocular fusion of colors (*cf.* S. Hecht, "On the Binocular Fusion of Color in Relation to Theories of Color Vision", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCE, 1928, Vol. 14, pp. 232–41), it must be assumed that either (*a*) the color-quality is produced in the brain—Troland's *Psychophysiology* (Vol. II) assumes this generally of color-qualities—; or (*b*) there is some 'sympathetic' nervous connection between the two eyes such that homologous retinal processes in them may modify each other when affected by opposing stimuli—a highly speculative hypothesis for which I can find no evidence; or (*c*) that the nerve-currents initiated by the red light in one eye and green light in the other oppose and effectively inhibit each other from discharging in any action-path and so neither the red nor green is seen but a residual effect of light on the remaining retinal elements. This hypothesis is congruent with our knowledge of the action of the nervous system and might explain why the fusion (?) results in our seeing yellow instead of the neutral gray which is the natural expectation from complementaries.

Here the obvious comment is that our language is confusing and the correct statement should be, this hand is cold in the water and the other is warm, that is, the qualities are occurrent on the organic surfaces rather than in the water, although due to the contact of the latter. If we again turn to physical conditions, we may believe warmth is the qualitative condition of that part of an organism of which the molecular motions are being accelerated by contact with something other than itself, and cold the qualitative condition when molecular motions are being retarded. If qualitative conditions are an aspect of physical structure (and it should be added, even in the case of color, of process in physical structures) the peculiar qualitative warmth we feel may exist only in organisms; but there can very well be a kind of warmth or cold in inorganic things as a quality accompanying molecular acceleration and deceleration. In that case water might also be qualitied as to temperature, but its quality would not necessarily be the same as what we should feel. That is, a vessel of cold water put on a lighted stove may have objectively a warm quality while it still feels cool to our touch, *i.e.* makes our hand cool, and removed from the stove it may have a cool quality while we still are warmed by contact with it.

There are those who will say, well, quality is a mystery anyway and you might as well account for it this way as any other. I consider such an answer to be entirely beside the point and misleading. An explanation consists only in showing connections between occurrences. Reality as a whole can only be described and not explained, for there is nothing else for it to be connected with. Quality as an occurrence is no more mysterious than structure as an occurrence. Both are characteristics of the universe to which we belong. Why there is reality at all cannot reasonably be asked, for the question is selfcontradictory, as implying a relation between all reality and another reality beside the all, which is absurd. All that is insisted upon here is the concurrence of specific qualities with specific structures and the impossibility of the one occurring without the other. It should be noted also that since the physical object is more than its elements, the relations between the elements also being physical states and belonging to the object, the quality

pertains to the object as a whole, and not to its elements. Thus water is wet but the molecules of water are not.[4]

To return to the arguments for the subjectivity of perceived qualities. The next group involves space-perception. In these I think psychologists have gone astray and misled philosophers by magnifying the importance of the sense-organs and the immediate data they contribute. To see, for example, really means to take account of some physical condition because of the character of a stimulus to the eye. But it does not mean that the retinal effect of the stimulus necessarily contains all the qualities taken account of. A thing, for example, may look cold or hot, wet or slippery, but that does not mean that the optical transcription has any one of these qualities. From earliest infancy our sense-organs are played upon simultaneously by a variety of stimuli and our behavior leads to many variations of their effects. It is not surprising then that sight should prepare us for the consequences of touching and that all those muscular adjustments that will result from contact should be made ready in response to an eye-stimulus. But these muscular adjustments involve process-changes within our muscles which by the present materialistic hypothesis should have qualitative character. All of our so-called space-perception is an interpretation of such muscular qualities. Wundt misunderstood sensory local signs as qualities of the contact sensory content, but they are actually qualities of the muscular process involved in the preparation of responses.

How subtle these muscle-responses may be depends upon how far the nerve-systems of our sense-organs have attained different motor outlets attuned to slight differences in the sensory contact. I have maintained elsewhere that Broad is quite wrong in asserting that we see ellipses when we confront pennies lying on tables. What we really see is circular objects lying down, that is, in perspective. I may repeat the one bit of evidence that children and the unsophisticated in drawing tend to reproduce what the object is, that is, to draw circles for the pennies, and only learn with difficulty that they have to draw what they do not actually see in order to make the drawing look like what they do see.

[4] *Cf.* Joad, *The Philosophical Aspects of Modern Science*, p. 149. Joad's argument, last paragraph, rests on a neglect of this analysis.

The reason is, of course, that our natural experience in growing up has trained our nervous system to respond to an approximately elliptical retinal projection by the adjustments necessary to deal with a circular object lying on a table and our space-qualitied feeling is of the muscular adjustment to such an object. That we cannot adapt to the optical defects of hypermetropic, myopic, or astigmatic vision is not due to a distortion of the image but to a blurring effect that makes it impossible to develop discriminating response to different aspects of the object that faulty projection has not reproduced.

The explanation of double images and mirror-images follows simply. Double images occur after homologous retinal regions have developed coöperative paths in the control of muscular reactions and then by some artificial condition non-homologous regions receive stimuli from a source that has usually stimulated homologous regions; hence the qualitied physiological condition occurring on the retina is as if the object were in two different places, and we see the one object as if in the two places. Similarly a mirror brings us the stimuli as if from an object in front of us, so that we get the muscular-space quality as of such an object. Seeing things where they are not is not the creation of a ghostly object in space but mislocating the seen object because it has happened to generate inappropriate kinæsthetic space-feelings. That it is really my window that I see in the mirror is proven by the fact that I can see you pull down the curtain when you actually do so, or if, under the conditions of double imagery, I am seeing it twice, it is really my window that I am seeing in two spatial directions, for the curtain is pulled down in both visions if in one. Such habituations confuse responses and create errors when we are confronted by unusual conditions. They are evidences of individual organic peculiarities but not of the subjectivity of sense-qualities.

Since ontologically we are merely organisms the only qualities that we have are qualities produced or reproduced in the organism. We learn their meanings as to the character of our environment from experiments in acting. It is obvious that we must see the distant star as it was ten thousand years ago, if its light has taken that time in reaching our eyes, for as effective connection with it

we have only the condition produced on the retina which our kinæsthetic muscular space-feeling places as *now* but *remote*. Alexander is quite right in pointing out that our sensed *now* relates to happenings distributed in perspective over a possibly vast time, since all stimuli, except direct-contact stimuli, have taken time to arrive and their condition at arrival is our only clew for interpreting the character of that from which they started. Like telegrams, they only bring in the message that was sent, but the message, although recording events now passed, does not therefore become subjective.

There is nothing in these arguments for the subjectivity of sensation to remove qualities from the physical world and let them escape to some nebulous existence in mind only. I can conceive the possibility of someone arguing that organisms are the only qualitied physical objects, but more plausibly, that we can have no assurance that the qualities occurrent in such objects in any way resemble the qualities, if any, of inorganic occurrences. I know of no absolute proof that qualities are not merely properties of organisms; but since organisms are physical structures it would be strange if just these physical structures had qualities and no others had them, and there is nothing about them from the physicochemical point of view that would suggest this difference.

It is a real question, however, how far the qualities occurring in the sense-regions of organisms may be similar to qualities of nature. Since we know that in vision they cannot always be so, for the distorting effect of hazy atmosphere, an intervening colored medium, or jaundice, is beyond dispute, there can be no immediate certainty that in what we call normal vision there is not involved also a 'normal' distortion. The question, as explained above, is not beyond the theoretic possibility of a scientific examination. Hence we are not irrevocably forced to what Joad has called physiological solipsism. It is a more interesting problem, however, to inquire whether all of the sense-qualities should be attributed to inorganic reality or whether some are peculiar to organic structures alone. From what has been said color seems indisputably a quality of material objects, at least of those sufficiently complex in structure to react appropriately under the

influence of light. Should sound be attributed to the vibrating body, to the air-waves, to both, or to organic conditions set up by such waves in the ear? The most reasonable hypothesis, although I cannot take time for the full argument here, is that sound is a qualitative character of vibratory matter whether in solid state, as a bell, or gaseous, or liquid, and quite independently of whether the matter is part of an organism or not. I will merely suggest that while we speak of colors as on our walls, we speak of our rooms as being filled with sound. Here again whether the sound as an experience corresponds to the sound as a quality of its inorganic physical origin is open to the same test as was proposed in the case of light, identity of physical process. I know too little about taste and smell to speak with great certainty, but since they are chemical senses it is suggested that the appropriate qualitied physical process may occur only in organisms, although similar processes, hence similarly qualitied, may occur in nature.

Pain brings me to a different class of quality, one that presumably does occur only in organisms, and even there, in general, only locally. If one could reproduce the exact conditions of structure of an aching tooth by chemical syntheses in the laboratory it would be necessary to say it had a pain-quality although nobody felt it, in accordance with the postulate of qualitative structural concurrence. Pleasantness and unpleasantness differ from such qualities as pain in involving a more diffused structural process. The qualities of these more diffused processes have more chance of variability of detail in the structural process; and, although pain-sense-qualities are not all alike, the feeling-qualities vary even more widely, and often become inferable from observable postural consequences. Thus a person may be said to look sad or gay, merry or downhearted, and the like. At a still higher level of intensity and variability, when not merely posture but conduct also is in evidence, we have the emotions; but the line of transition between feeling and emotion cannot be clearly drawn introspectively from the qualitative aspect of intraorganic processes, or objectively from the behavior-aspect, nor can we clearly separate these two since behavior is merely a noticeable outcome of structural process within the organism and not an independent occurrence.

Feelings and emotions are merely qualitied conditions of an organism when it is undergoing certain internal processes of coördinative changes. Our physiologists are just beginning to get some concrete knowledge of what these processes are and are groping for their physiological consequences in behavior. At present it is much easier to tell how an angry man or a man in love will behave by a sort of empiric method, quite analogous to the empiric method in medicine, than to hope for an interpretation in terms of structural process. Holt in his *Animal Drive and the Learning Process* has given us as good an account as can now be given of the generation of our characteristic behavior in physiological terms, and, even though future physiological studies may modify aspects of his account, I think there is no doubt that the angle of approach is wholly correct, although the difficulties of tracing specific details are likely always to be such that for the purposes of ordinary living the approach through the qualitative will in many cases be more practicable; but it is to be remembered that any differences in so-called conscious states, as qualitied differences, are equally differences in the processes of which they are an aspect.

To summarize this brief account of the sensory aspect of mind, what we call conscious content is merely the quailtative aspect of organic process when such qualitied processes are dominating the integrations of acquired engrams and furthering a specific type of behavior. What philosophers have called *sensa* are the immediate modifications produced in a sensory region by contact with something else; but they are never, merely as occurrent, the object of awareness, but are set in the spatial and affective qualitied occurrences that accompany further organic modifications consequent to them. *Sensa* become of importance because, through processes such as Holt describes, they acquire control over special nerve-paths, and the results of this control, as expressed in attitudes or in actions, constitute their meaning. Thus the distance-contact through the eye with a campfire means an opportunity to get warm, to cook food, and the like. Knowledge consists in the repertoire of possible actions that can be set off by any *sensum*. Hence the error of Broad and his fellows in trying to attribute the characteristics of knowledge, say in the case of the alleged

elliptical appearance of the penny, to a direct awareness of the sensum. We are never aware of an isolated sensum as such; for awareness, or consciousness, means the domination of our main nervous integrations by one or several sensory conditions, but, as any such responses cannot avoid giving rise to kinæsthetic qualities which form a part of the sense-data and indicate processes contributing to and directive of the form of some response, these are also inevitably a part of the conscious state. It is by an acquired reaction to our own perceptive reactions that we may learn to ascribe elliptical form to the seen penny on the table. A pure *sensum,* if such a thing were possible, would be nowhere and at no time, extentless and durationless. If anyone thinks he has experienced such a phenomenon I wish him joy, although I doubt his perspicacity.

In the foregoing we have come dangerously near encroaching upon the so-called higher mental processes, and we must now bring them into the picture. The first step toward this must be an account of imagery. An image, from this point of view, is a qualitied condition of some portion of the organism, the region of a sense-contact, that has acquired by a learning process the function of activating some sets of nerve-paths, or action-patterns, and may occur and motivate these patterns in the absence of the usual external sensory stimuli. When the sensory stimuli are present such a sensory region, as qualitied, is called a sensory image in relation to the whole perceptive process; when it recurs in the absence of the usual sensory stimuli it is called a mental image. A qualitied organic occurrence that does not dominate the innervation of a nerve-pattern is not an image, and is not sensed. For example, I can focus a picture on the back of my hand and have the occurrence of its colors and projected character on the skin, but as the picture does not generate a response coördinated about it it is not a sensory image.

Images may be classified as of three sorts. In the first place, there are what we may call presentative or resembling images. These consist of recurring sensory conditions similar to the sense-contact presentation, controlling the same action-patterns over which the sensory stimuli from something have acquired control. As evidence that these actually occur I will merely refer to Hol-

lingworth (*Psychology of Thought,* Ch. VII) and repeat his quotation from Lashley (p. 98), "The majority of psychologists claim to find peripheral sensory elements in their images. In my own, I find the condition to be as follows. The visual image is made up largely of the feel of movement, with a core of true visual quality. This, on closer examination, turns out to be an actual entoptic stimulus—retinal light or after image—which is interpreted in terms of the motor activity. Thus an entoptic light, aroused by a pressure, was successively interpreted as a human face, a wolf's head, and the wing of a flying bird, in accordance with changes of the motor set." In another citation made by Hollingworth a dream of Bergson's identifies an imaged cry of 'Out! Out!' as an interpretation of the physical qualitied occurring 'Wow! Wow!' of a barking dog that was the actual sense-stimulus. I call such images presentative or resembling because their qualitative aspect is probably the same, or nearly the same, as the qualitative component in the case of direct perception. Please note that they may be either a sensory condition aroused by some processes within the organism, as in the case of the entoptic stimulus, or a presentation of something occurring without the organism that, due to some peculiar condition, such as sleep in the case of Bergson's dream, innervates an unusual action-pattern and so has a different *meaning* from its usual one.

The other two classes of imagery are *representative* or symbolic, rather than *presentative* or resembling. They are made possible by the processes of conditioning whereby a concurrent stimulus takes over the operation of an action-pattern that has been related to some other stimulus. The first class can be called *natural* representative or symbolic imagery. In the course of making or preparing any response to a stimulus there will be various organic changes involving muscles, glands, etc., and some of these may involve definite qualitied organic conditions that mark changes from which further changes in behavior are going to spring. In Berkeley's *Theory of Vision* the eye-muscles give rise to qualitied states interpreted as distance. Such qualitied organic states, or some of them, may by conditioning take over the function of the original stimulus in selecting certain action-patterns. When this occurs they become image-substitutes for the stimulating object

or situation, as truly as a resembling image would be. Sometimes their occurrence is manifest in a gesture or posture. In writing, spelling may be controlled by such imagery of a kinæsthetic type, and accuracy of spelling when typing may be very different from accuracy when using a pen.

The third type is only a variant on this, and may be characterized as *arbitrary* representative or symbolic imagery. The most familiar case of arbitrary representation is, of course, denotative language. Here first sounds, and later written symbols, come to take on the meanings, in the sense 'meaning' has been given above, of things or situations. All language is a consequence of arbitrary conditioning, but I have specified denotative language here, since the conditioning to commands and exhortations is a special and slightly different use of the conditioning process which does not concern us at present. The peculiarity of this sort of imagery is that images identical in meaning may occur as *qualia* of several senses, vision, hearing, kinæsthetic muscular sensation, etc. A word retains its meaning whether heard, seen, vocalized, or, in the case of writing for the blind, touched. The qualitied occurrence is important from its acquired meaning only.

The term idea denotes a qualitied image-state together with the action-patterns under its domination. These will vary somewhat according to the other image-states that have preceded its occurrence or are concurrent with it. Thus when a letter is in my hand 'post' means hunting a letter-box, but if I were riding a horse 'post' would mean something quite different.[5] The integrative process following upon the occurrence of an idea-image leads to a narrowing of possibilities as a specific action is approached. For example the occurrence of the image *dog,* in contrast to the image *piano,* selects and prepares a certain repertoire of responses which the latter does not. *Dog-action* is easily specified into the lines denoted by feeding the dog or taking him for a walk, but I should never think of offering the piano a bone or inviting it to join me in a promenade. The very suggestion sets up a kind of

[5] A manuscript shown me by my friend Professor Lanz elaborates a very interesting conception of the *idea* in accordance with mathematical group-theory. I interpret him as meaning that any image-core of an idea controls a repertoire of engrams, and the condition of its occurrence leads to a selection from them of the one most relevant to present need.

inner conflict of such a qualitied character that I laugh and denote the idea, the transfer to the piano-referring symbol of the dog-referring action, ridiculous. Images setting up such first limitations on the repertoire of consequent behavior occur in general ideas. Frequently a conjunction of them results in the integration of a specific action-pattern, perhaps in combination with those of present sensory stimuli, that result in specific action, as the conjunction of the clock striking five, the idea that my wife is out, and the presence of my dog Rufus, develops into the specific action of giving Rufus his ground beef and lettuce, with a selection of charcoal or plain puppy-biscuit according to recently observed traits of his behavior.

Thinking is just such a process of maturing an action-pattern from sensory and ideal images. As Dewey has pointed out, it begins when action, perhaps only the act of speaking, is blocked. An image evoked by some conditions that include these drives starts the integration of an action-pattern, but as the integration proceeds qualitied states, further images, are produced within the organism, with further consequences, until the pressure which started the process is relieved by an appropriate outlet. The resistance of many philosophers to the idea that thought always results in action and is a preparation for it results, I believe, from the fact that the goal of thinking is often only the attainment of an attitude or general idea that modifies later conduct but no more specifies an immediate particular act than the occurrence of the idea *dog* implies that one must take a walk. Thus the man who becomes convinced that God exists thereby attains a general integrative basis of thought and action that may not express itself in any specific act but modifies his whole possible repertoire of subsequent thoughts and actions. To attain such restrictive limitation is as truly doing something as to select the proper fork for salad at dinner.

Psychologists have been given to discussing the possibility of imageless thought. I do not feel competent to comment on the question of its occurrence or non-occurrence. But the question means this, and psychologists have not always been clear as to its meaning: Since thought is always a process by which new integrations of action-patterns are attained, if the process of attaining

these involves the incidental occurrence of image-states as contributory to the necessary integrations, the progress of thinking will be marked by the occurrence of imagery; but if an integration of nerve-patterns takes place without the occurrence and utilization of such qualitied organic states, the result of thinking will still be attained, *i.e.*, the thought will be imageless. It also should be noticed that the conclusion of thinking may be a new idea and not a concatenation or mere compresence of old ideas, for the attained action-pattern, or meaning, is not necessarily the same as any of the former meanings together or *seriatim*.

Memory has often been a stumbling-block for philosophers interested in a materialistic or naturalistic account of mind. Superficially, from a physiological point of view the problem of memory is fairly simple, for memories consist of the repertoire of action-patterns that have been built up in the course of the learning process, together with the possible recurrent qualitied physiological states that set them off. But this simplicity is illusory. A memory always occurs in a setting of present action, be it daydreaming or problem-solving. When such present activity reinstates images and their meanings, as defined above, these meanings enter into the present processes of nerve-pattern integrations, but it is quite right to insist that they may enter either as memory-images or as imagination-images. There is a qualitied difference in these two cases, but the difference is not in the image-quality itself. In imagining how a tree would look in a certain corner of my yard, the tree that imagination images is quite likely a memory-image of some tree I have seen. However, imagining and remembering as acts spring from two different sorts of process that are going on within me. In memory a certain degree of precise specificity is required in the idea to fit with the integrative processes generating the remembering, but this requirement of or pressure toward specificity is entirely lacking in mere imagining. In other words the demands of imagining are for remembered general ideas that may be worked down toward the specific in accordance with present whim, while in memory the demand is for comparatively concrete ideas that are not to be extended in specificity beyond what is given in the revival. These two different settings result in two differently qualitied states. In other words a present memory-

image is set in a qualitied feeling of pastness that is lacking in the imaginative image. Philosophical difficulties arise from an improper formulation of the question as 'how a past event can function now'. The answer is that it does not, but consequences of the past event are now present and some of them do function now in such a fashion as to lead us to take account of the fact that the remembered event has occurred. I am in close sympathy with Mead's account of the problem in the first of his Carus lectures.

I should far transcend the limits of your endurance if I incorporated here an adequate discussion of specific psychological processes. My present interest is in trying to render plausible the conception of mind as highly organized processes in certain physiological structures when their significance is attached to their qualitied aspect, a conception quite parallel to the conception of health, wealth, or wantonness, a *thing* in a logical but not in a metaphysical sense. Metaphysically there is nothing real but the qualitied physical processes of nature that give rise to the properties of entities but within which a rock is as real as an electron, and a man as a rock. Each has its peculiar properties which can be correlated with its structure. Mind is the name we give to a distinguishable set of such properties in human organisms when those processes are interpreted by the qualitied aspects of the structures involved.

From a broad point of view we can distinguish three comparatively distinct levels of mind. The primary level can be described qualitatively as consisting of feeling, moods, and emotions, grouped together as affective states, and is especially significant as the ultimate basis of all human behavior. Apparently this level represents certain processes within the organism that fulfil the function of maintaining an adequately coördinated balance of the many processes going on within it. Thus a mood-state determines to a considerable extent which of the many stimuli playing upon the organism shall dominate in determining action. We tend to see and hear only what our mood-states find congenial, except, of course, when we have been committed to some special program of action and therefore become sensitive to what bears on that program. That is, in an apprehensive mood, we are sensitive to all possible warnings of danger, in a cheerful mood to all possible

sources of pleasure, etc. In an emotional state, as Dewey has shown, we are rapidly changing our plan of action, hence vigorous new internal coördinations with vivid qualitative character are set up to meet the energy-demands on our muscles.

On a second level of mind we have the sets of reflex nerve-paths that, I believe with Holt, are acquired either in the embryonic state or during the processes of independent living. Here the only qualitied condition is of the muscles involved in responses, and it furnishes a sort of kinæsthetic halo that tends to be assimilated with the qualities of feeling and mood. The acquiring of what we call seeking-and-avoiding responses occurs on this level, but for the story of these processes I must refer you to Holt, or some similar book, as it constitutes a rather intricate chapter of physiological psychology.

The third level involves what are usually called the higher conscious processes, although I must record a protest against the term 'higher' with its ethical implications, for morally the basic processes are probably affective states, and perhaps these are also of high importance from the point of view of good thinking. Without a certain sensitivity of feeling the discrimination of desirable and undesirable actions, of profound and superficial thinking, is wellnigh impossible.[6] But it is true that these higher processes can be well or poorly developed from this foundation. With them imagery first comes into play and immediate action is blocked until such coördinations of systems of reflexes are brought into action as prepare direct ways of meeting situations.

In the simpler forms of these processes we have what is known amongst psychologists as trial-and-error learning, the utilization through imagery of action-patterns that have been developed by past experiences in situations similar in appropriate respects to those that led to their development. Psychologists sometimes confuse this with intelligence, but I should prefer to reserve this term for the still more complicated case in which a new situation is met and action prepared through an integration of previously learned processes into a new type of behavior which is not a simple repetition of anything done before. We may learn by trial and

[6] This statement implies taking seriously Poincaré's rhapsody: *Foundations of Science*, pp. 366–8.

error the location of the cellar-stairs in a new house into which we have moved, but, when and if we solve the problem of handling a new type of furnace from a knowledge gained by dealing with varying types of furnaces without preliminary trials and errors, we have used intelligence. Since the distinction between these two types of behavior depends on differences between the new situation and old ones, and since differences may take on an infinitesimal character, the line of cleavage is not sharp. Like the distinction between adolescence and maturity, when fully developed the two states are quite different but one cannot define precisely where one leaves off and the other begins. The same difficulty also appears in distinguishing some cases of acquiring reflexes, and lower trial-and-error learning.

Like the Platonic Socrates of the *Republic* I have somewhat the feeling of breasting waves likely to overwhelm me, and, since this is a monologue and not a dialogue, I have no means of knowing that in your eyes I am not already overwhelmed; but I must now seek to surmount the last and greatest of the waves I have seen approaching. What is the basic drive lying behind human activity and those processes that have given rise to mind and shaped its activities to æsthetic, moral, or religious ends? Traditionally we have such empirical answers as hunger, sex, or companionship. Of these I think the answer hunger is the most penetrating, but I should prefer to express this as the tendency to maintain a certain metabolic balance of the organism, that results in, though it does not aim at, self-preservation. This is more fundamental than sex, for without it there could not occur those developed secretions and organic changes that demand sex-activity for the preservation of their own balance. Food is the basic balancer, as the source of all organic energy whatsoever. If one asks why organisms should maintain themselves the only answer is that if they did not there would be no organisms. In other words the processes of nature are such that many things are brought together and when it is in their character to interact they do. I can see nothing further than a sort of natural selection as the conditioning occurrence—note that I do not say force. I mean that, nature being what it is, electrons, protons, atoms, molecules, occur with the characteristics they have. If they are thrown into proper conjunctions

combinations of them occur, and those having the characteristics necessary for stability persist while those that have not disintegrate. Living organisms arise, develop, or perish, according to such chance conjunctions, and the surviving resultants on this planet are the plants, animals, and men we find. The processes we trace in them by which they are maintained are the processes that the character of physical reality has allowed to survive.

I have called this selfmaintaining process of the organism its maintenance of metabolic balance. The thesis I wish to maintain is that the processes of human life, men's love and hate, their aspirations and their despair, their reachings out for truth, beauty, and goodness, are all the working out of this fundamental characteristic of very complex organisms, the processes of the internal structure of which require subtle coördinations and recoördinations, if they are to maintain themselves in a varying environment. As I have asserted elsewhere before this Association[7] our lack of physiological knowledge may make it always desirable to substitute qualitative terms for physiological ones, and the language of romance may always communicate more subtle information about human behavior than the language of the physiologist, but that is not because the romancer is dealing with something different in kind but because he is dealing with the same reality from a more convenient mode of approach. The romantic term 'steadfast will', for example, denotes a persistent set for a line of action expressive of the integration of certain nerve-patterns through the intermediation of what I have described as ideas. The man of 'high aspirations' is working out a coördination harmonious with the preservation of special rather subtle feeling-states, and the "peace that passeth understanding" is a sort of smooth-running state of nerve-pattern integrations that can meet necessary adjustment-demands of the environment without the discomfort of conflicting and inhibiting impulses. But in all these cases the reference to the organic processes, in the light of our present knowledge, must be so vague that it is hardly worth while even to shadow forth the physiological aspect. As was pointed out at the beginning of this paper, the problem of daily living can often be best handled in qualitative terms.

[7] "A Philosopher Looks at Psychology", THE PERSONALIST, Vol. XI, No. 2 (April 1930), esp. pp. 101 ff.

When the coöperation of physiological drives, the modifications we have suffered through past experiences, and the factors of present situations, have produced in us certain general ideas of which the active aspect is clothed with that feeling of satisfaction and love that indicates in them a strong tendency to dominate our future types of integrated behavior, we say that we have ideals. And given ideals, whatever is believed to further their realization is said to have value. Thus the term value expresses merely a human interest in certain lines of causation because of their relation to thought-guided aspects of human behavior. The value-situation implies an integration of human interests and human recognition of those orderly processes of nature that we read as causal series. The relation may be somewhat incidental, as a farmer may value rain as making his crops grow where the growth of crops is itself subordinate to the realization of an ideal of comfort in living; or it may be more direct, as an experience that develops courage, independence, or some trait essential to the ideal of character that has been attained. It is not strange that ideals may seem to belie their generating causes and lead to physical death rather than life, for their acceptance is the initiation of a type of integration that takes on the fixity of habit, so that no matter what the pressure of environment the basic lines will not change. Characters so integrated may be called saints, martyrs, or hardened criminals, according to the valuation other men set upon their acts. In them the actors have at least been true to their characters.

My reason for touching upon these more complex aspects of mind that I must here mention so superficially is to indicate to you that I am not committing a fallacy very common in philosophic theories: that of adopting a theory and deducing the facts therefrom, or denying them if they cannot be deduced. This latter process has been a particular weakness of materialistic theories of mind. The richness of facts stands as it is, and the most a theory can aim to do is to furnish a sort of coördinating structure that helps in the effort to view them together and to understand what is likely to come out from them and under what conditions. If you will pardon a little personal confession, I am by temperament mystical; a certain sort of friend assures me that I am

psychic. Certainly I have profound æsthetic experiences. I believe that I have certain moral aspirations and qualities of generosity, kindliness, and the like, along with many less admirable characteristics that a certain reticence keeps me from advertising. I think I understand what is called religious experience and have had it, but I am not quite sure. And yet I am convinced that the above theory of mind furnishes a basis within which all these traits can find their setting. That is, I take no stock in the claims of philosophers, like Joad, that æsthetic, mystic, or religious, experience can furnish a knowledge of reality comparable to the way of science. They are, like all other occurrences, a part of reality, but what they reveal is the imagery, longing, and emotional processes, that may be set up in certain human organisms under certain conditions, which is, of course, psychological information about human individuals and can be studied scientifically. The imagery involved, however, is not like the imagery of successful science, a symbolization of general cosmic processes taking place in physical nature, but has the character of pure imagination-imagery, where the elements are combined without the restrictions of presentation, merely for the sake of the inner adjustments they produce. Not that such imagery has an unimportant function, but, like poetry, it must be restricted to the functions it can fulfil and not confused with the psychological materials that guide specific action in a world of objective things.

The self is then nothing but the organism when its more habitual and characteristic ways of action are abstractly emphasized as the character of a self, and when certain evaluating epithets are applied by the observer. In the narrow sense I am now the present set of ideas, feelings, and impulses, that my organism has or is at this moment; in a slightly broader sense I am the repertoire of such ideas, feelings, and impulses, as my organism is capable of, although no one, I or you, would talk about them without adding valuating epithets such as good humor, bad memory, shallow or profound thinker, and the like. To insist on a merely physiological description would be like describing the performance of a violinist as generating air-waves of certain amplitude, form, and frequency, by scraping the tail of a dead horse over the guts of a deceased cat, a description wholly truthful but omitting

reference to those feeling-reactions produced in the observer which might lead him to say 'This is lovely music'. The sounds are, however, called 'music' and 'lovely' only because of the effects on the physiological processes of the observer and the qualitied characteristics involved.

Consciousness or awareness is the occurrence of such qualitied states of the organism in physiological regions capable of dominating the integrations of nerve-paths into the prevailing action-pattern. It is not at all absurd that there should be such existences as an unconscious headache. When the headache-condition is present it usually dominates, but it is quite possible that some intensely stimulating occurrence, either within or without the organism, would shift the region of dominance so that the headache-qualitied region might remain unchanged, still headachy, but no longer dominant or felt. But regions of dominance are rarely quite as specific as the above illustration implies. One may be, say, headachy, cold, and tired, in which case there is a kind of coöperative dominance, and the relative strength of these components may be modified as when in the above situation we light the fire and lie down, not losing the sense of headache meanwhile. Hence the shadings and complications consciousness familiarly exhibits. Self-consciousness is no mystery, for it merely denotes the state of an organism when its action is directed toward itself, that is, it is attitude-taking toward certain of its own states instead of toward an external situation. For example, something makes me, my organism, angry; but I may have certain incidental reactions, perhaps memories, of which the physiological expression is co-dominant with that involved in getting angry, and the new resultant qualitied conditions get control, so that like Kipling's soldier man I stand aside and "watch myself behaving like a bloomin' fool", with or without feelings of disapproval according to the character-sets I have developed.

As with sensory phenomena it would be possible to go on almost endlessly describing these higher processes. Perhaps this whole philosophy of mind can be summed up best by some general metaphysical assertions. The one term in our vocabulary denoting substantive existence is reality or *physis*. All others denote merely qualitied states of this reality. Of these space and time are the

only ones denoting non-regional qualitied aspects. Matter denotes those qualitied regions within which structural processes of a certain sort can be distinguished. Further special characteristics of structural process enable us to differentiate the animate and the inanimate, and still further peculiarities to distinguish between the minded and the non-minded. To try to ascribe a mind to the universe is either to extend the meaning of the term mind so that it becomes identical with cosmic process and loses all the differentiating character that originally led to its introduction, as if we should decide to call all animals dogs, or it is to assume in the universe a structured organization identical with that of man, or at least with that of the higher animals. The universe would have to be credited with a sense of smell, taste, and sight, and be capable of fear, hunger, sexual desire and the like. All of which is, of course, quite ridiculous.

Let me conclude in the spirit of John Stuart Mill.

If I am informed that the world is the expression of principles all attributes of which are mental, but what they are we cannot learn, nor what are the psycho-physiological processes of its thinking, except that the best physiological knowledge we might have could not describe them; convince me of it, and I will bear my fate as I may. But when I am told that I must believe this, and at the same time call this being by the same names which express and affirm the highest human mental processes, I say in plain terms that I will not. Whatever influence such a cosmos may have on me, there is one thing it shall not do: it shall not compel me to acknowledge it as mental! I will call no being 'minded', who is not what I mean when I apply that epithet to my fellow-creatures; and if such a being can sentence me to hell for not so calling it, to hell I will go.

HAROLD CHAPMAN BROWN

STANFORD UNIVERSITY

PROCEEDINGS OF THE AMERICAN PHILOSOPHICAL ASSOCIATION 1932

SIXTH ANNUAL REPORT OF THE BOARD OF OFFICERS

To the Members:

The Revolving Fund for Publication

The financial statement appears below. The general editor of the Source Books in the History of the Sciences presents the following report:

Since the report rendered a year ago Professor Morris R. Cohen of the College of the City of New York has been secured to prepare a volume covering the entire field of science in the ancient and medieval worlds, the manuscript for a *Source Book in Physics* has been completed, and the work on a *Source Book in Geology* has come so far along that it will probably be finished by the end of the coming spring. Definite progress, also, has been made in the preparation of a *Source Book in Botany,* although it is not yet possible to predict when it will be ready for the press. Still further, active steps are being taken to secure the right man for a *Source Book in Zoology,* but as yet no announcement can be made.

Gregory D. Walcott, *General Editor*

Carus Lectures

The fourth series of the Paul Carus Foundation Lectures will be delivered in Chicago, September 6–9, 1933, at a general meeting of the Association to be held in connection with the annual meeting of the Western Division. The lecturer will be Professor William Pepperell Montague. Professors D. H. Parker, W. P. Montague, and M. R. Cohen, have been appointed members of the Committee on the Carus Lectures until December 31, 1934.

American Council of Learned Societies

The Association was represented at the annual meeting of the Council, held in Washington, D. C., January 29–30, 1932, by its delegates Professors Hammond and Woodbridge, and by the secretary. During the year the Council issued *A Catalogue of Publications in the Humanities by American Learned Societies.* In addition to inaugurating a discussion of the research-and-publishing problems of the Societies, the Council supported the following projects of interest

to the Association: Professor Lovejoy's *Documentary History of Ideas,* Professor W. A. Heidel's *History of Greek Scientific and Philosophical Thought Prior to Aristotle,* and Professor H. A. Wolfson's *Commentaries of Averroës on Aristotle.* Professor Woodbridge has accepted reappointment as a delegate of the Association to the Council, for a term expiring December 31, 1936.

COMMITTEE ON BIBLIOGRAPHY

At the request of the Eastern Division the Board asked each Division to appoint a member on a Committee on Bibliography. Professors C. J. Ducasse (*chairman*), D. S. Robinson, and C. H. Farman, constitute the committee. The purpose of this group is to lay plans for bringing up to date Rand's *Bibliography of Philosophy,* and for keeping it up to date through the publication of an annual *Philosophical Index.* A request for aid in the completion of the first part of the above project was laid before the American Council of Learned Societies, but was returned to the Association for further study.

COMMITTEE TO COÖPERATE WITH THE EIGHTH INTERNATIONAL CONGRESS OF PHILOSOPHY (Prague, 1934)

President Spaulding has appointed to the above committee Professors A. C. Armstrong (*Honorary Secretary*), J. J. Coss (*Acting Secretary*), G. P. Adams, E. B. McGilvary, W. P. Montague, R. B. Perry, G. Rebec, and W. M. Urban.

The Board voted to reimburse the PHILOSOPHICAL REVIEW for the extra expense involved in carrying in its pages the list of members and the Divisional Proceedings of the Association. The presidential addresses appearing in the REVIEW will continue to be paid for by the REVIEW itself.

BOARD OF OFFICERS FOR 1933

M. T. McClure (*Chairman*), C. I. Lewis, J. E. Boodin, E. T. Mitchell, H. A. Larrabee, H. G. Townsend (*Secretary-Treasurer*).

Respectfully submitted,

Board of Officers for 1932.

E. G. SPAULDING, *Chairman*
A. P. BROGAN
H. C. BROWN
F. S. C. NORTHROP (on leave)
H. A. LARRABEE (*ad interim*)
E. T. MITCHELL
H. G. TOWNSEND
C. W. MORRIS, *Secretary.*

FINANCIAL STATEMENT

January 2, 1933

Board of Officers,
American Philosophical Association,
Dr. Charles W. Morris, *Secretary*,
Chicago, Illinois.

Gentlemen:

Complying with your written instructions of December 17, 1932, I have examined the records of the American Philosophical Association, Chicago, Illinois, for the period of January 1, 1932, to December 31, 1932, and submit herewith the statements of cash receipts and disbursements of the General Treasury, Revolving Fund for Publication, and Fund for the Eighth Congress of Philosophy.

I have verified the balances of cash on hand by personal examination of the depository records at the South Texas Commercial National Bank, Houston, Texas, have examined all cancelled checks and authorizations for disbursements, and find them to be in accordance with the requirements of your Association. The cash receipts were found to be in agreement with the remittance advices in the files of your Secretary.

I certify that, based upon the records kept and examined, the following statements of cash receipts and disbursements of the General Treasury, Revolving Fund, and Fund for the Eighth Congress of Philosophy, of the American Philosophical Association, are true and correct and represent the true cash position of the Association at the close of business, December 31, 1932.

Respectfully submitted,

ROY H. REECE, *Accountant*

AMERICAN PHILOSOPHICAL ASSOCIATION

Cash Statement, General Treasury, for the Year Ended December 31, 1932

Balance—January 1, 1932 (South Texas Commercial National Bank, Houston, Texas)		$ 309.80
Receipts:		
Dues of American Council of Learned Societies—		
Eastern Division	$ 15.15	
Pacific Division	2.58	
Western Division	7.27	$ 25.00
For General Treasury—		
Eastern Division	$ 91.75	
Pacific Division	15.50	
Western Division	43.75	$151.00

For Printing Annual Report—			
Eastern Division	$105.00		
Pacific Division	17.73		
Western Division	50.07	$172.80	
Total Receipts			$ 348.80
Total			$ 658.60
Disbursements:			
Dues to American Council of Learned Societies		$ 25.00	
Audit		10.00	
Printing the Annual Report		172.80	
Stenographic services		37.75	
Stationery		11.00	
Extra copies of *Proceedings*		5.50	
Stamps		10.00	
Shipping expenses		1.25	
U. S. check tax		0.16	
Total Disbursements			$ 273.46
Balance—December 31, 1932 (South Texas Commercial National Bank, Houston, Texas)			$ 385.14

Cash Statement, Revolving Fund for Publication, for the Year Ended December 31, 1932

Balance—January 1, 1932 (South Texas Commercial National Bank, Houston, Texas)			$ 9,834.26
Receipts:			
Interest on Bank Deposits	$242.42		
Royalties (McGraw-Hill Book Company)	83.10		
Total Receipts			$ 325.52
Total			$10,159.78
Disbursements:			
Advances, *Source Book in Geology* (Dr. Shirley Mason)	$400.00		
U. S. Check Tax	.02		
Total Disbursements			$ 400.02
Balance—December 31, 1932 (South Texas Commercial National Bank, Houston, Texas)			$ 9,759.76

Cash Statement, Fund for the Eighth Congress of Philosophy, for the Year Ended December 31, 1932

Balance—January 1, 1932 (South Texas Commercial National Bank, Houston, Texas)			$ 458.87

Receipts:		
Interest on Bank Deposits	$ 15.79	
Royalties (Longman's Green and Company)	156.21	
Total receipts		$ 172.00
Total		$ 630.87
Total Disbursements		NONE
Balance—December 31, 1932 (South Texas Commercial National Bank, Houston, Texas)		$ 630.87

WESTERN DIVISION

President: M. T. MCCLURE
Vice-President: GEORGE P. CONGER
Secretary-Treasurer: E. T. MITCHELL
Executive Committee: The foregoing officers and ALBERT E. AVEY, E. A. BURTT, J. H. FARLEY, KARL SCHMIDT, C. B. VIBBERT

The thirty-third annual meeting of the Western Division of the American Philosophical Association was held at the University of Michigan, March 24–26, 1932.

The following program was presented:

The Development of James's Pragmatism Prior to 1879
MAURICE BAUM
Mr. Broad and the Case for the Sensum Theory....GEORGE GENTRY
The *Parmenides* in the Light of the Propositional Function
ELEANOR BISBEE
The Sources of Bradley's Antinomies of the Good....J. H. FARLEY
Current Scepticism of Metaphysics.....W. S. GAMERTSFELDER
Relational Categories and the Quest for Unity.....MARVIN FARBER
Some Philosophical Implications of Present-Day Physical Theories
E. B. MCGILVARY
The Psychology of Heraclitus.....M. T. MCCLURE
Epitomization and Epistemology.....GEORGE P. CONGER
The Philosophic Uses of Experimental Psychology
CHARLES HARTSHORNE
The Genetic Approach to the Ego-Centric Problem....J. A. MELROSE
The Logical Character of the Principle of Induction..HERBERT FEIGL
The Mystery of Scientific Discovery.....A. C. BENJAMIN
The Concepts of Order and Probability in the Writings of Cournot
MERRITT H. MOORE
The Existential Status of Facts and Laws of Physics..KARL SCHMIDT
Conscience as a Function of Doing-Suffering.....T. V. SMITH

Types of Moral Judgment.....GLENN R. MORROW
Axiology as the Logic of the Social Sciences.....HOWARD O. EATON
Meaning and Value, A Study of the Neo-Kantian Philosophy of Value .....BONNO TAPPER
The Presidential Address: Philosophy and the Problem of Value
A. P. BROGAN

It was recommended by the Executive Committee, and adopted by vote, that the Western Division approve the project of a Committee on Bibliography and appoint Professor D. S. Robinson as their representative on that committee.

The Executive Committee recommended that, in view of the surplus in the treasury, the annual dues be reduced from $2.00 to $1.50. Recommendation voted on and passed.

The Executive Committee recommended that members three or more years in arrears be dropped from the list of members if no communication was received from them before the end of the year. Approved.

Voted: That the next meeting of the Western Division be held at Chicago during the first two weeks of September, 1933, in connection with the Chicago Centennial, the occasion being the general meeting to receive the Carus Lectures.

The Secretary reported the result of the ballot taken by mail regarding the regular time of meeting.

In favor of meeting at Eastertide as in the past	42
In favor of meeting during the Christmas vacation	30
Neutral	4
Total	76

In view of the indecisive nature of the result, and of the fact that only half the members had voted, it was decided to postpone discussion of the issue till the next meeting, and in the meantime to call for a second written ballot.

The resignations of two members were received: Professor Herbert L. Searles, now of the University of Southern California, and Professor Wm. A. Shimer, now moved to New York to become Secretary of the United Chapters of Phi Beta Kappa.

Two members were taken by death during the year: Professor George Herbert Mead of the University of Chicago, and Mrs. Lois Shepherd Green of Urbana, Illinois. The following commemorative notice on Professor Mead, written by Professor James H. Tufts, was read by the Secretary and ordered to be spread on the minutes:

By the death of Professor George Herbert Mead on April 26, 1931, the Western Division of the American Philosophical Association lost one of its most eminent and best-loved members. His career as a teacher of philosophy began at the University of Michigan in 1891. Here he formed lifelong friendships with two men whose names are honored by this University, John Dewey and Alfred Lloyd. At the meeting of the Western Division with this University in April, 1917, he was the President. It seems peculiarly appropriate that, at this meeting with the institution where he began his professional work, the Western Division place on record its appreciation of his wide scholarship, his fine culture, his broad interests, and his influence as a teacher of philosophy.

George Herbert Mead was born in South Hadley, Massachusetts, on February 27, 1863, of a family whose traditions were of religious and intellectual interests. After a college course at Oberlin and graduate study under James, Royce, and Palmer, he went to Germany for three years of further study, returning in 1891 to become Instructor in Philosophy at the University of Michigan. In 1894 he went with Professor Dewey to the University of Chicago, and continued in active service there, except for the spring semester of 1929, in which he served as Mills Professor at the University of California, until his death.

He was a great teacher of graduate students. He had at his command a wealth of scientific and historical material, but his power lay in his fresh interpretation of this material. Philosophy was never for him a matter of techniques; he belonged rather to the grand tradition. His central problem of the relation between individual mind and social experience grew continuously in his own thought, and found new formulations and applications in its presentation to successive classes of students. His wide range of reading, together with his knowledge of peoples and places gained through travel, combined to make him at home in the thought and life of all ages, and was reflected in his suggestive and illuminating treatment of human life and thought both past and present. Because his mind was constantly growing he was eminently successful in awakening the minds of his hearers to new meanings and fruitful lines of inquiry. Many publications by others show the influence of his thinking. More than forty members of this Association, and many from the related fields of psychology and social sciences, were among his students, and few failed to be quickened in their intellectual life by his teaching.

In earlier life he published sparingly; in later years his inclusive interests were shown by frequent contributions, dealing not only with philosophy but with education, social reform, and international relations. His selection to give the third series of Carus lectures showed the high esteem in which he was held by the Association. His high character, his generous and helpful spirit, his large conception of philosophy and of the function of the teacher of philosophy, leave the profession his debtor.

Professor M. T. McClure read a brief appreciation of the life and character of Mrs. Lois Shepherd Green, who had taken an active interest in the progress of philosophy in the University of Illinois and who had been a worthy citizen of Urbana.

Twenty-two applications for membership were received and, on recommendation of the Executive Committee, approved. These were: VIRGIL C. ALDRICH, ELEANOR BISBEE, MAURICE BAUM, ALBURY

CASTELL, HERBERT FEIGL, C. R. GRIFFITH, GEORGE GENTRY, EVERETT W. HALL, RICHARD HOPE, RAYMOND HOEKSTRA, HARRY JELLEMA, OSCAR KUBITZ, NENIEN C. MACPHERSON, MERRITT H. MOORE, JOHN MARSHALL, L. M. PAPE, A. S. RAMSPERGER, LIONEL RUBY, SAMUEL THOMPSON, ALFRED TONNESS, WM. M. TRAP, IRL GOLDWIN WHITCHURCH.

Treasurer's Report

Balance—January 1, 1931	$423.00
Receipts	
Dues	258.08
Interest on savings deposit	7.42
Total	$688.50
Disbursements	
Our share of Joint Meeting at Berkeley	$ 18.67
Our share of A. P. A. budget	93.05
Letterheads, envelopes, etc.	16.25
Stenographic service	29.58
Stamps	10.00
Freight and cartage	2.10
Programs for Ann Arbor meeting	18.50
Total	$188.15
Balance—March 25, 1932	$500.35

A unanimous vote of thanks was extended to the University of Michigan, to the Department of Philosophy, and to the Michigan League, for the excellent arrangements for the meeting, the splendid accommodations in the Michigan League, and the gracious hospitality extended to the visiting members.

E. T. MITCHELL, *Secretary-Treasurer*

EASTERN DIVISION

President: CLARENCE I. LEWIS
Vice-President: C. J. DUCASSE
Secretary-Treasurer: HAROLD A. LARRABEE
Executive Committee: G. W. CUNNINGHAM (1933), STERLING P. LAMPRECHT (1933), H. T. COSTELLO (1934), H. B. SMITH (1934), GEORGE BOAS (1935), CORNELIUS F. KRUSÉ (1935), EDWARD G. SPAULDING *ex officio* for one year

The thirty-second annual meeting was held at Bryn Mawr College, Bryn Mawr, Pennsylvania, December 28–30, 1932. The following program was presented:

Tercentenary Session on Locke and Spinoza

John Locke.....FREDERICK J. E. WOODBRIDGE
Spinoza's Doctrine of Intellectual Intuition.BENJAMIN GINZBURG
Non-being.....RAPHAEL DEMOS
Are There Particulars?.....BRAND BLANSHARD
What Are Propositions?.....MORRIS R. COHEN
The Problem of General Propositions.....ANDREW P. USHENKO
Are Particulars Constituents of Propositions?.....LUCIUS GARVIN
The Operational Test of Meaninglessness.....RAY H. DOTTERER
What Is Analysis?.....ALBERT E. BLUMBERG
The Individual.....PAUL WEISS
Logical Positivism and Psychology.....JOHN A. IRVING
Relational Absolutes.....HELEN H. PARKHURST
The Relation of the Moral to the Æsthetic Standard in Plato
KATHARINE GILBERT
The Right and the Good: Methodology in Ethics...SARAH H. BROWN
Reality and "the real" in Bradley.....RUDOLF KAGEY
Aristotle's Analytic Method .....ABRAHAM EDEL
The Theory of Logical Continuity.....LEWIS S. FEUER
The Identity of Formal and Material Truth in Rational Thinking
KURT E. ROSINGER
On Truth.....JOHN SOMERVILLE

The business meeting was called to order at 2 p.m. Friday, December 30th, with President Spaulding in the chair. The minutes of the thirty-first annual meeting were approved as printed.

Treasurer's Report

Receipts		
Balance brought forward	$1,869.64	
Membership dues	674.74	
Interest	30.15	
Total		$2,574.53
Expenditures		
Dues to National Association	91.75	
Dues to Council of Learned Societies	15.15	
Printing of Annual Report	105.00	
Expenses 1931 Annual Meeting	85.05	
Stencils and mimeographing	21.45	
Printing, stamped envelopes, postage, etc.	82.79	

Secretarial assistance, mailing, etc.	99.06	
Loss on Canadian Exchange	.74	
Total		$ 500.99
Balance on hand		$2,073.54

Audited and found correct { BRAND BLANSHARD / HAROLD R. SMART

The following recommendations of the Executive Committee were presented to the meeting and approved: (1) That requests for transfers from other Divisions be entertained only from those persons who are in good and regular standing in the Division from which they wish to transfer. (2) That the Committee on Appointments be continued under a new chairman to be appointed by the new president, the Division yielding with regret to Professor H. B. Smith's desire to relinquish the office, and requesting him to continue until a new chairman is appointed. (3) That the Annual Meeting of the Division be held next December in addition to the general meeting in connection with the Annual Meeting of the Western Division in Chicago, September 6–9, 1933. (4) That the resignation of Professor F. S. C. Northrop as Secretary-Treasurer be accepted with regret, and that the present Secretary-Treasurer *ad interim,* Professor Harold A. Larrabee, be elected to that office for a term of three years including the present year, expiring in December, 1934.

Upon the motion of Professor H. B. Smith the question of where the Presidential Address for 1933 is to be delivered was referred to the Program Committee with power, in consultation with the new President of the Division. Suggestions of round tables on different fields of discussion (by Professor Hughes) and of a session to be devoted to a discussion of problems relating to the teaching of philosophy (by Professor Wheelwright) were also referred to the Program Committee with power.

Professor C. J. Ducasse reported to the Division the activities of the Committee (composed of representatives of each of the three Divisions) on Bibliography in planning to continue to date the work of Dr. Benjamin Rand, a project having been placed before the American Council of Learned Societies for the purpose of securing a grant in aid.

Professor G. D. Walcott reported for the Committee on Source Books in the History of the Sciences.

The Nominating Committee (E. B. McGilvary, Chairman, J. H. Tufts, and A. C. Armstrong) presented the following nominations,

for which the secretary was instructed to cast a unanimous vote: for President, Clarence I. Lewis; for Vice-President, C. J. Ducasse; for new members of the Executive Committee, George Boas and Cornelius F. Krusé.

Memorial Resolutions. The Eastern Division in the course of the year lost by death from its active membership Ralph Monroe Eaton and Flora Isabel Mackinnon. The following resolutions were read, ordered to be spread upon the minutes of the Association, and transmitted to the families of the deceased.

Ralph Monroe Eaton. This Division learns with sorrow of the death on April 13, 1932, of Ralph Monroe Eaton, Assistant Professor of Philosophy and Tutor in the Division of Philosophy of Harvard University. Professor Eaton was born in Stockton, California, and was graduated from the University of California in 1914. He spent the next three years as a student in the Harvard Graduate Schools of Arts and Sciences, where he received the degrees of A.M. and Ph.D. One of the first to apply for admission to the Officers' Training Camp at Plattsburgh in the spring of 1917, he was commissioned as second lieutenant attached to the 103rd Infantry and sent to France with the 26th Division. There he saw almost continuous service as an officer of the line. He was promoted to be a first lieutenant and placed in command of his regimental supply-company. His regiment was in action at San Mihiel and afterward in the Argonne.

After demobilization he returned to Harvard, where he received his appointment as Assistant Professor in 1926. In the beginning his interest was in scientific method and logic. His first article, published in the JOURNAL OF PHILOSOPHY, was on "The Value of Theories" and was remarkable for its lucidity and grasp. In 1925 he published his first book, entitled *Symbolism and Truth.* In this he discussed the rôle of symbols in knowledge and expounded a theory concerning systems of postulates as types of syntax. In 1931 he published his second book, entitled *General Logic;* in this, among other things, his aim was to show the thread of continuous development in logical theory from Aristotle to symbolic logic. It is the only book in the field which brings together all the branches of that subject.

He wrote a number of articles in addition to these books, and edited a volume of selections from Descartes. He became much interested in psychoanalysis, and his last work was a translation of a German book on the subject, to which he contributed an illuminating introduction. The fundamental motive of his mind was the quest of the ultimate, the metaphysical impetus; whether he was discussing logic, theory of knowledge, or psychology, he was seeking for a truth whose purport was universal and philosophical.

His mind was fresh, impulsive, various; yet also rigorous and analytical. Philosophy for him was not merely something to read or write; it was an intercourse of minds, dialogue, reflection; further, it was a doctrine of life. He was a born tutor, one of the best that Harvard has ever known. His gift of a sympathetic imagination enabled him to enter quickly into the ideas of another and to offer stimulating and relevant criticism. And he influenced his colleagues and friends both by his arguments and by the impact of his vigorous,

vivid and radiant personality. Thinker, writer, teacher, man—a philosopher in the full sense of the word. (By Raphael Demos.)

Flora Isabel MacKinnon. The Division records with keen regret the loss of Flora Isabel MacKinnon, who died on December 4, 1932, after a brief and sudden illness. Miss MacKinnon graduated from Wellesley College in 1907, received her doctor's degree from the University of Toronto in 1924, and was, at the time of her death, Associate Professor of Philosophy at Wellesley College. Her most important published work was *The Philosophical Writings of Henry More,* which appeared in 1928. Most of her professional life was spent in the teaching of philosophy at Wellesley. She was a woman of independent judgment, critical scholarship, and remarkable power in teaching after the Socratic model. (By Eleanor A. Gamble.)

New Members. The following nominees were recommended by the Executive Committee and elected to membership. *Active Members:* Robert C. Baldwin, Clayton A. Baxter, Gordon H. Clark, Abraham Edel, W. J. B. Edgar, James S. Fulton, James Gutman, Edgar Henderson, C. A. Krug, Susanne K. Langer, Horace T. Lavely, Constance Rathbun, Margaret B. Rawlings, J. W. Robson, Herbert F. Rudd, John Somerville, Walter T. Stace, Douglas V. Steere, Margaret Storrs, Gregory Vlastos, Phillip P. Wiener, Ledger Wood. *Associate Members:* Haym Jaffe, Samuel Skulsky. The transfer of membership of R. B. Winn from the Pacific Division to the Eastern Division was formally approved.

By a unanimous rising vote the Division expressed its thanks to Bryn Mawr College and the local committee for their generous hospitality and the excellence of their arrangements for the comfort and pleasure of their guests. The Executive Committee announced the acceptance of the invitation of Amherst College to meet in Amherst, Massachusetts, in December, 1933.

HAROLD A. LARRABEE, *Secretary-Treasurer*

PACIFIC DIVISION

President: J. E. BOODIN
Vice-President: GEORGIANA MELVIN
Secretary-Treasurer: H. G. TOWNSEND
Executive Committee: The foregoing officers and H. C. BROWN *ex officio* for one year, HUGH MILLER (1933), G. P. ADAMS (1934), D. A. PIATT (1934)

The ninth annual meeting was held at Mills College on December 27, 28, 29, 1932. The following program was presented:

Contemporary Philosophies and Education.....E. A. ROBINSON
The Function of Religion in Plato's States.....GEORGE BELKNAP

Symposium: Chance and Cosmogony
S. C. PEPPER, PAUL MARHENKE, V. F. LENZEN, WILLIAM SAVERY
Three Notes on Spinoza's Ethics.....D. W. PRALL
Necessity and Contingency in Spinoza.....WILLIAM SAVERY
Bentham's Utilitarianism and the Rise of Authoritative Economics
E. E. ERICKSEN
Locke's Ethical Theory.....GERTRUDE SANFORD
The Development of Locke's Empiricism.....D. S. MACKAY
The Presidential Address: Mind, an Event in Physical Nature
H. C. BROWN
Items in a Linguistic Propædeutic to Logic.....E. O. SISSON
"To sleep, perchance to dream".....B. A. G. FULLER

The business meeting was called to order at 9 a.m., December 29th, by President Brown. The minutes of the previous meeting were approved as printed. The following report of the Treasurer was presented and accepted:

Balance—January 1, 1932		$179.57
Receipts		
Dues		126.00
Total		$305.57
Expenditures		
Divisional dues to A. P. A.	$15.50	
Divisional dues to A. C. L. S.	2.58	
Annual Report	17.73	
Printing	20.48	
Clerical help	10.65	
Postage	11.00	
Check tax	.08	
Total Expenditures		$ 78.02
Balance—January 1, 1933		$227.55

Audited and found correct: D. A. PIATT

The Secretary reported that C. H. Farman was appointed by the President as the representative of the Pacific Division to the Committee on Bibliography.

On the recommendation of the Executive Committee the following persons were elected to active membership: Harold C. Blote, H. Jeffery Smith, Edward W. Strong, and, by transfer, Orvil F. Myers, D. A. Piatt. The following person was elected to associate membership: George K. Roth.

On the recommendation of the Executive Committee the following new officers were elected: President, J. E. Boodin; Vice-President, Georgiana Melvin; Members of the Executive Committee: G. P. Adams and D. A. Piatt.

It was unanimously voted to extend the thanks of the Division to Mills College and to the members of its Philosophy Department for the remarkable hospitality extended to the Division during the meeting.

H. G. TOWNSEND, *Secretary*

LIST OF MEMBERS

Members should notify the secretary of their Division of any changes to be made in the list of names and addresses.

Adams, Professor George P., University of California, Berkeley, Calif.
Adler, Professor Felix, Columbia University, New York City.
Aikins, Professor H. Austin, Western Reserve University, Cleveland, Ohio.
Aldrich, Dr. Virgil C., The Rice Institute, Houston, Texas.
Alexander, Professor H. B., Scripps College, Claremont, Calif.
Alles, Professor Adam, St. Johns College, Annapolis, Md.
Ames, Professor E. S., University of Chicago, Chicago, Ill.
Ames, Professor Van Meter, University of Cincinnati, Cincinnati, Ohio.
Anderson, Professor Frederick, Stanford University, Calif.
Anderson, Professor Fulton H., University of Toronto, Toronto, Canada.
Angier, Dr. R. P., Yale University, New Haven, Conn.
Apple, President Henry H., Franklin and Marshall College, Lancaster, Pa.
Armstrong, Professor A. C., Wesleyan University, Middletown, Conn.
Avey, Professor Albert E., Ohio State University, Columbus, Ohio.
Ayres, Professor Edith, 49 West 12th Street, New York City.
Baillie, Professor John, Union Theological Seminary, New York City.
Baker, Dr. John Tull, Sarah Lawrence College, Bronxville, N. Y.
Bakewell, Professor C. M., Yale University, New Haven, Conn.
Baldwin, Professor Robert C., Connecticut Agricultural College, Storrs, Conn.
Balz, Professor Albert, University of Virginia, Charlottesville, Va.
Barrett, Professor Clifford L., Princeton University, Princeton, N. J.
Baum, Professor Maurice, Kent College, Kent, Ohio.
Baxter, Dr. Clayton A., Mount Allison University, Sackville, N. B., Canada.

Baylis, Professor Charles A., Brown University, Providence, R. I.
Beardslee, Professor Claude Gillette, Lehigh University, Bethlehem, Pa.
Becker, Professor Frank C., Lehigh University, Bethlehem, Pa.
Bellperch, Professor R. J., St. Xavier College, Cincinnati, Ohio.
Benham, Professor A. R., University of Washington, Seattle, Wash.
Benjamin, Professor A. C., University of Chicago, Chicago, Ill.
Bennion, Professor Milton, University of Utah, Salt Lake City, Utah.
Bernstein, Professor B. A., University of California, Berkeley, Calif.
Bewkes, Professor E. G., Colgate University, Hamilton, N. Y.
Birch, Professor T. Bruce, Wittenberg College, Springfield, Ohio.
Bisbee, Professor Eleanor, University of Cincinnati, Cincinnati, Ohio.
Bixler, Professor Julius S., Smith College, Northampton, Mass.
Black, Dr. G. A., 156 Park Street, Gardner, Mass.
Blake, Professor R. M., Brown University, Providence, R. I.
Blanshard, Professor Brand, Swarthmore College, Swarthmore, Pa.
Blanshard, Mrs. Frances B., Swarthmore College, Swarthmore, Pa.
Blote, Dr. Harold C., 262 Scenic Avenue, Piedmont, Calif.
Blumberg, Dr. A. E., Johns Hopkins University, Baltimore, Md.
Boas, Professor George, Johns Hopkins University, Baltimore, Md.
Bode, Professor B. H., Ohio State University, Columbus, Ohio.
Bogoslovsky, Dr. Boris B., 407 Central Park West, New York City.
Boodin, Professor J. E., University of California at Los Angeles, Los Angeles, Calif.
Boswell, Professor Foster P., Hobart College, Geneva, N. Y.
Boynton, Professor Richard W., University of Buffalo, Buffalo, N. Y.
Bradshaw, Professor M. J., Bangor Theological Seminary, Bangor, Maine.
Brandt, Professor Francis B., 4337 Larchwood Ave., Philadelphia, Pa.
Brett, Professor G. S., Toronto University, Toronto, Canada.
Brightman, Professor Edgar S., Box 35, Newton Center, Mass.
Brinton, Professor Howard, Mills College, Oakland, Calif.
Britan, Professor Halbert H., Bates College, Lewiston, Maine.
Brogan, Professor A. P., University of Texas, Austin, Texas.
Brotherston, Professor Bruce W., Tufts College, Medford, Mass.
Brown, Professor A. E., 317 East Main, Paw Paw, Mich.
Brown, Professor H. C., Stanford University, Calif.
Brown, Dr. Sarah H., Wells College, Aurora-on-Cayuga, N. Y.
Brown, Professor William Adams, Union Theological Seminary, New York City.
Bryan, President W. L., Indiana University, Bloomington, Ind.

Bryson, Mr. Lyman, 4291 Hermosa Way, San Diego, Calif.
Buchanan, Professor Scott M., University of Virginia, Charlottesville, Va.
Buckham, Professor John Wright, Pacific School of Religion, Berkeley, Calif.
Buermeyer, Dr. Lawrence, New York University, New York City.
Burnham, Mr. James, Washington Square College, New York University, New York City.
Burtt, Professor E. A., Cornell University, Ithaca, N. Y.
Bush, Professor Wendell T., Columbia University, New York City.
Bussey, Professor Gertrude C., Goucher College, Baltimore, Md.
Butler, President N. M., Columbia University, New York City.
Butt, Professor S. McClellan, Smith College, Northampton, Mass.
Caldwell, Professor M. A., University of Louisville, Louisville, Ky.
Calhoun, Dr. Robert L., Yale University, New Haven, Conn.
Campbell, Professor H. G., Morningside College, Sioux City, Iowa.
Campbell, Professor Ivy G., Wells College, Aurora, N. Y.
Carmichael, Professor R. D., University of Illinois, Urbana, Ill.
Case, Professor Mary S., Wellesley College, Wellesley, Mass.
Castell, Professor Albury, University of Minnesota, Minneapolis, Minn.
Cattell, Dr. J. McKeen, Garrison-on-Hudson, N. Y.
Chambers, Professor Lawson P., Washington University, St. Louis, Mo.
Chandler, Professor Albert R., Ohio State University, Columbus, Ohio.
Chanter, Professor William G., Wesleyan University, Middletown, Conn.
Chao, Dr. Yuen Ren, Chinese Educational Mission, 1360 Madison Street, N.W., Washington, D. C.
Chatterji, Mr. J. C., International School of Vedic Research, Times Bldg., New York City.
Chidsey, Professor Harold R., Lafayette College, Easton, Pa.
Christ, Dr. Paul S., Liberty High School, Bethlehem, Pa.
Clark, Dr. Gordon H., University of Pennsylvania, Philadelphia, Pa.
Clark, Professor Mary E., Smith College, Northampton, Mass.
Clarke, Dr. Francis P., University of Pennsylvania, Philadelphia, Pa.
Cohen, Dr. Felix S., 640 Fort Washington Avenue, New York City.
Cohen, Professor Joseph W., University of Colorado, Boulder, Colo.
Cohen, Morris R., College of the City of New York, New York City.
Conger, Professor G. P., University of Minnesota, Minneapolis, Minn.
Coolidge, Professor Mary Lowell, Wellesley College, Wellesley, Mass.

Cory, Professor C. E., Washington University, St. Louis, Mo.
Cory, Professor H. E., University of Washington, Seattle, Wash.
Coss, Professor John J., Columbia University, New York City.
Costello, Professor H. T., Trinity College, Hartford, Conn.
Cowling, President D. J., Carleton College, Northfield, Minn.
Cox, Dr. George Clarke, 40 Wall Street, New York City.
Craig, Dr. Wallace, P. O. Box 554, Brookline, Mass.
Crane, Professor Esther, Goucher College, Baltimore, Md.
Crawford, Professor J. F., Beloit College, Beloit, Wis.
Crawford, Professor Lucy S., Sweet Briar College, Sweet Briar, Va.
Cresswell, Professor John R., University of West Virginia, Morgantown, W. Va.
Crooks, Professor Ezra B., University of Delaware, Newark, Del.
Crowley, Professor W. A., University of Cincinnati, Cincinnati, Ohio.
Cunningham, Professor G. Watts, Cornell University, Ithaca, N. Y.
Curtis, Professor M. M., Western Reserve University, Cleveland, Ohio.
Cutler, Professor Anna A., 407 Whitney Avenue, New Haven, Conn.
Daniels, Dean Arthur H., University of Illinois, Urbana, Ill.
Davenport, Professor Charles K., University of Virginia, Charlottesville, Va.
Davies, Professor A. E., Colorado College, Colorado Springs, Colo.
Dearborn, Dr. G. V. N., U. S. Veterans' Hospital Number 81, New York City.
De Boer, Professor C., University of Arkansas, Fayetteville, Ark.
Deglman, Professor G. A., Rockhurst College, Kansas City, Mo.
De Largy, Dr. P. L., University of Illinois, Urbana, Ill.
Demos, Dr. Raphael, Harvard University, Cambridge, Mass.
Denison, Professor Robert S., Pomona College, Claremont, Calif.
Dennes, Professor W. R., Yale University, New Haven, Conn.
Dent, Professor L. L. M., University of Virginia, Charlottesville, Va.
Dewey, Professor John, Columbia University, New York City.
Dickinson, Professor F. W., University of Denver, Denver, Colo.
Diehl, Professor Frank, Hanover College, Hanover, Ind.
Dodd, Mrs. Edwin M., Jr., 999 Memorial Drive, Cambridge, Mass.
Dodge, Professor Raymond, Yale University, New Haven, Conn.
Dodson, Rev. George R., Washington University, St. Louis, Mo.
Dolson, Dr. Grace N., St. Mary's Free Hospital for Children, Inc., 407 West 34th Street, New York City.
von Domarus, Dr. Eilhard, Rockland State Hospital, Orangeburg, N. Y.

Dotterer, Professor Ray H., Pennsylvania State College, State College, Pa.
Doxsee, Professor Carl W., Pennsylvania College for Women, Pittsburgh, Pa.
Drake, Professor Durant, Vassar College, Poughkeepsie, N. Y.
Dubs, Professor Homer H., Marshall College, Huntington, W. Va.
Ducasse, Professor C. J., Brown University, Providence, R. I.
Dunham, Dr. James H., Temple University, Philadelphia, Pa.
Duvall, Professor R. G., Ohio Wesleyan University, Delaware, Ohio.
Dykhuizen, Professor George, University of Vermont, Burlington, Vt.
Eames, Professor H. P., Scripps College, Claremont, Calif.
Eaton, Professor Howard O., University of Oklahoma, Norman, Okla.
Eckardt, Professor L. R., Depauw University, Greencastle, Ind.
Edel, Mr. Abraham, College of the City of New York, New York City.
Edgar, Dr. W. J. B., Princeton University, Princeton, N. J.
Elkus, Dr. Savilla A., 434 W. 120th Street, New York City.
Emery, Professor Stephen A., University of North Carolina, Chapel Hill, N. C.
Ericksen, Professor E. E., University of Utah, Salt Lake City, Utah.
Evans, Professor D. Luther, College of Wooster, Wooster, Ohio.
Everett, Professor Walter G., Brown University, Providence, R. I.
Farber, Professor Marvin, University of Buffalo, Buffalo, N. Y.
Faris, Professor Ellsworth, University of Chicago, Chicago, Ill.
Farley, Professor J. H., Lawrence College, Appleton, Wis.
Farman, Dr. Carl H., University of Southern California, Los Angeles, Calif.
Feigl, Professor Herbert, University of Iowa, Iowa City, Iowa.
Ferm, Professor Vergilius, College of Wooster, Wooster, Ohio.
Fisch, Professor M. H., Western Reserve University, Cleveland, Ohio.
Fisher, Dr. D. Warren, New Canaan, Conn.
Fite, Professor W., 5 College Road, Princeton, N. J.
Fletcher, Professor O. O., Furman University, Greenville, S. C.
Flewelling, Professor Ralph T., University of Southern California, Los Angeles, Calif.
Friess, Professor Horace L., Columbia University, New York City.
Frye, Dr. A. Myrton, Dartmouth College, Hanover, N. H.
Fuller, Professor B. A. G., 173 Walnut Street, Brookline, Mass.
Fulton, Mr. James S., McGill University, Montreal, Canada.
Gabbert, Professor M. P., University of Pittsburgh, Pittsburgh, Pa.
Gamble, Professor Eleanor A., Wellesley College, Wellesley, Mass.
Gamertsfelder, Professor W. S., Ohio University, Athens, Ohio.

Garnett, Professor A. G., Butler University, Indianapolis, Ind.
Geiger, Professor G. R., University of North Dakota, Grand Forks, N. D.
Geiger, Professor Joseph R., College of William and Mary, Williamsburg, Va.
Gentry, Dr. George, University of Texas, Austin, Texas.
Geyer, Professor D. L., 5725 Kimbark Avenue, Chicago, Ill.
Gifford, Professor A. R., University of Vermont, Burlington, Vt.
Gilbert, Dr. Katharine E., Duke University, Durham, N. C.
Gillet, Professor A. L., Hartford Theological Seminary, Hartford, Conn.
Ginzburg, Dr. Benjamin, 3908 Bliss Street, Long Island City, N. Y.
Given, Dr. P. L., 357 Lincoln Avenue, Orange, N. J.
Givler, Professor Robert C., Tufts College, Mass.
Gotshalk, Professor D. W., University of Illinois, Urbana, Ill.
Gould, Professor Walter H., Norwich University, Northfield, Vt.
Greene, Professor Theodore M., Princeton University, Princeton, N. J.
Griffith, Dr. C. R., University of Illinois, Urbana, Ill.
Guthrie, Professor E. R., University of Washington, Seattle, Wash.
Gutman, Dr. James, Columbia University, New York City.
Hack, Professor R. K., University of Cincinnati, Cincinnati, Ohio.
Hall, Professor Everett W., Ohio State University, Columbus, Ohio.
Hammond, Professor W. A., Cosmos Club, Washington, D. C.
Harkness, Professor Georgia E., Elmira College, Elmira, N. Y.
Harris, Professor Marjorie S., Randolph-Macon Woman's College, Lynchburg, Va.
Hartman, Professor Henry G., University of Cincinnati, Cincinnati, Ohio.
Hartshorne, Professor Charles, University of Chicago, Chicago, Ill.
Hausheer, Professor Herman, College of Puget Sound, Tacoma, Wash.
Hawes, Professor R. P., Goucher College, Baltimore, Md.
Headley, Professor L. A., Carleton College, Northfield, Minn.
Heath, Professor Louise R., Hood College, Frederick, Md.
Hendel, Professor Charles W., McGill University, Montreal, Canada.
Henderson, Dr. Edgar, Williams College, Williamstown, Mass.
Henderson, Professor Ernest N., Adelphi College, Garden City, N. Y.
Henke, Professor Frederick G., Allegheny College, Meadville, Pa.
Hibben, Dr. J. G., Princeton University, Princeton, N. J.
Hildebrand, Professor Carroll DeWitt, Depauw University, Greencastle, Ind.
Hill, Dr. A. Ross, 618 Pioneer Trust Bldg., Kansas City, Mo.

Hinman, Professor E. L., University of Nebraska, Lincoln, Neb.
Hitchcock, Dr. Clara M., 1923 East 71st St., Cleveland, Ohio.
Hite, Professor L. F., 42 Arlington Street, Cambridge, Mass.
Hocking, Professor W. E., Harvard University, Cambridge, Mass.
Hoekstra, Dr. Raymond, University of Michigan, Ann Arbor, Mich.
Holcomb, Professor Louise, Wilson College, Chambersburg, Pa.
Hollands, Professor E. H., University of Kansas, Lawrence, Kansas.
Holmes, Professor Jesse H., Swarthmore College, Swarthmore, Pa.
Holtzclaw, Professor B. C., University of Richmond, Richmond, Va.
Hook, Professor Sidney, New York University, New York City.
Hope, Professor Richard, University of Pittsburgh, Pittsburgh, Pa.
Horne, Professor H. H., New York University, New York City.
Horton, Professor W. M., Oberlin College, Oberlin, Ohio.
Hoskyn, Dr. Fred P., Yale University, New Haven, Conn.
Houf, Professor H. T., Ohio University, Athens, Ohio.
Howes, Dr. Ethel P., Smith College, Northampton, Mass.
Hudson, Professor J. W., University of Missouri, Columbia, Mo.
Hughes, Professor Percy, Lehigh University, Bethlehem, Pa.
Husik, Professor Isaac, University of Pennsylvania, Philadelphia, Pa.
Hutcheon, Professor R. J., 5659 Woodlawn Avenue, Chicago, Ill.
Iredell, Professor Francis R., Pomona College, Claremont, Calif.
Irving, Professor John Allan, Princeton University, Princeton, N. J.
Jackson, Professor Reginald, Trinity College, Oxford, England.
Jefferson, Professor Howard B., Colgate University, Hamilton, N. Y.
Jellema, Professor Harry, Calvin College, Grand Rapids, Mich.
Johnson, Professor George, Lincoln University, Chester County, Pa.
Johnson, Professor Paul E., Hamline University, St. Paul, Minn.
Johnson, Professor R. B. C., Princeton University, Princeton, N. J.
Jones, Professor A. H., University of Rochester, Rochester, N. Y.
Jones, Professor A. L., Columbia University, New York City.
Jones, Professor Rufus M., Haverford College, Haverford, Pa.
Jordan, Professor E., Butler University, Indianapolis, Ind.
Jordan, Professor Philip D., Long Island University, 300 Pearl St., Brooklyn, N. Y.
Joshi, Professor S. L., Dartmouth College, Hanover, N. H.
Kagey, Dr. Rudolf, New York University, Washington Square East, New York City.
Kallen, Professor Horace, 66 West 12th Street, New York City.
Kantor, Professor J. Robert, Indiana University, Bloomington, Ind.
Kellogg, Professor Edwin H., Skidmore College, Saratoga Springs, N. Y.

Kelly, Professor Thomas R., Earlham College, Richmond, Ind.
Kemmerer, Mrs. Mabel C., State Laboratory, Old Capitol, Jackson, Miss.
Kennedy, Professor Gail, Amherst College, Amherst, Mass.
Keyser, Professor Cassius J., Columbia University, New York City.
Kirn, Dean G. J., North Central College, Napierville, Ill.
Knight, Professor Edward C., 5475 Cabanne Avenue, St. Louis, Mo.
Knudson, Professor Albert C., 72 Mt. Vernon Street, Boston, Mass.
Kretschmann, Dr. Philip M., 1530 E. 17th Street, Brooklyn, N. Y.
Kroencke, Dean F. W., Valparaiso University, Valparaiso, Ind.
Krug, Professor C. A., Mount Allison University, Sackville, N. B., Canada.
Krusé, Professor Cornelius F., Wesleyan University, Middletown, Conn.
Kubitz, Dr. Oscar, University of Illinois, Urbana, Ill.
Lafferty, Dr. T. T., Lehigh University, Bethlehem, Pa.
de Laguna, Professor Grace A., Bryn Mawr College, Bryn Mawr, Pa.
Lamprecht, Professor Sterling P., Amherst College, Amherst, Mass.
Lane, Professor W. B., University of Toronto, Toronto, Canada.
Langer, Dr. Susanne K., Radcliffe College, Cambridge, Mass.
Langford, Professor Cooper H., University of Michigan, Ann Arbor, Mich.
Lanz, Professor H. C., Stanford University, Calif.
Larrabee, Professor Harold A., Union College, Schenectady, N. Y.
Lavely, Professor Horace T., Allegheny College, Meadville, Pa.
Leary, Professor D. B., University of Buffalo, Buffalo, N. Y.
Leavenworth, Dr. Isabel F., Barnard College, New York City.
Lee, Dr. Otis Hamilton, Harvard University, Cambridge, Mass.
Leidecker, Dr. Kurt F., 22 King St., Oberlin, Ohio.
Leighton, Professor J. A., Ohio State University, Columbus, Ohio.
Lenzen, Professor V. F., University of California, Berkeley, Calif.
Levinson, Professor Ronald B., University of Maine, Orono, Me.
Lewis, Professor Clarence I., Harvard University, Cambridge, Mass.
Lewis, Dr. Leicester C., Episcopal Academy, Overbrook, Pa.
Liddell, Professor A. Forbes, Florida State College for Women, Tallahassee, Florida.
Lindley, President E. H., University of Kansas, Lawrence, Kansas.
Lodge, Professor R. C., University of Manitoba, Winnipeg, Canada.
Loeb, Dr. Elizabeth N., 95 Prescott St., Cambridge, Mass.
Loewenberg, Professor J., University of California, Berkeley, Calif.
Long, Professor W. H., University of Southern California, Los Angeles, Calif.

Lorimer, Dr. Frank, 2810 P Street, N.W., Washington, D. C.
Lough, Professor J. E., 66 Fifth Ave., New York City.
Lovejoy, Professor A. O., Johns Hopkins University, Baltimore, Md.
Lyman, Professor Eugene W., Union Theological Seminary, New York City.
MacCallum, Professor H. R., University of Toronto, Toronto, Canada.
MacDougall, Professor R. M., 228 Midland Ave., Montclair, N. J.
Macintosh, Professor Douglas C., Yale University, New Haven, Conn.
Mackay, Professor D. S., University of California, Berkeley, Calif.
MacKaye, Dr. James, Dartmouth College, Hanover, N. H.
Mackenzie, President William D., Hartford, Conn.
MacLennan, Professor S. F., Oberlin College, Oberlin, Ohio.
MacMillan, Dr. D. F., Board of Education, Chicago, Ill.
MacPherson, Dr. Nenien C., Garrett Biblical Institute, Evanston, Ill.
McClure, Professor M. T., University of Illinois, Urbana, Ill.
McCormack, Mr. Thomas J., LaSalle, Ill.
MacGiffert, Dr. A. C., Union Theological Seminary, New York City.
McGill, Dr. V. J., Hunter College, New York City.
McGilvary, Professor E. B., University of Wisconsin, Madison, Wis.
McIntire, Professor Walter O., Wheaton College, Norton, Mass.
McKeon, Professor Richard, Columbia University, New York City.
Mahan, Professor W. B., University of Arkansas, Fayetteville, Ark.
Manry, Professor James C., Allahabad Christian College, Allahabad, India.
Marhenke, Dr. Paul, University of California, Berkeley, Calif.
Marlatt, Professor Earl B., 9 Willow Street, Boston, Mass.
Marsh, Professor H. D., College of the City of New York, New York City.
Marshall, Professor John S., Albion College, Albion, Mich.
Marti, Professor Fritz, Hollins College, Hollins, Va.
Martin, Mr. Everett D., People's Institute, New York City.
Martin, Professor Herbert, University of Iowa, Iowa City, Iowa.
Martin, Professor S. Guy, Northwestern University, Evanston, Ill.
Marvin, Professor W. T., Rutgers University, New Brunswick, N. J.
Mason, Professor M. Phillips, Bowdoin College, Brunswick, Me.
Meiklejohn, Professor Alexander, University of Wisconsin, Madison, Wis.
Melrose, Professor J. A., James Millikin University, Decatur, Ill.
Melvin, Professor Georgiana, Mills College, Calif.
Michel, Professor Virgil, St. John's University, Collegeville, Minn.
Miller, Professor Dickinson S., c/o Thomas Cook & Son, Stephansplatz, Vienna, Austria.

Miller, Professor Hugh, 405 Highland Avenue, Los Angeles, Calif.
Miller, Dr. James W., Harvard University, Cambridge, Mass.
Miller, Professor John W., Williams College, Williamstown, Mass.
Miller, Mr. S. Kerby, University of Missouri, Columbia, Mo.
Mitchell, Professor Arthur, 17 Strong Street, Jamestown, N. Y.
Mitchell, Professor E. T., University of Texas, Austin, Texas.
Montague, Professor W. P., Columbia University, New York City.
Moore, Dr. E. C., University of California, Los Angeles, Calif.
Moore, Professor Jared S., Western Reserve University, Cleveland, Ohio.
Moore, Mr. Merritt H., University of Chicago, Chicago, Ill.
More, Dean Louis T., University of Cincinnati, Cincinnati, Ohio.
Morgan, Dr. George Allen, Jr., Harvard University, Cambridge, Mass.
Morgan, Professor W. J., Washburn College, Topeka, Kansas.
Morgan, Mr. William S., 1683 La Loma Avenue, Berkeley, Calif.
Morris, Professor Charles W., University of Chicago, Chicago, Ill.
Morris, Professor Frank E., Connecticut College, New London, Conn.
Morrow, Professor Glenn R., University of Illinois, Urbana, Ill.
Muir, Professor Ethel G., The Wilcox Place, Painesville, Ohio.
Munro, Professor Thomas, Western Reserve University, Cleveland, Ohio.
Murphy, Professor Arthur E., Brown University, Providence, R. I.
Myers, Professor Orvil F., Los Angeles Junior College, Los Angeles, Calif.
Nagel, Dr. Ernest, Columbia University, New York City.
Nahm, Professor Milton C., Bryn Mawr College, Bryn Mawr, Pa.
Nason, Mr. John W., Swarthmore College, Swarthmore, Pa.
Nelson, Dr. Everett, University of Washington, Seattle, Wash.
Nelson, Professor R. W., Phillips University, Enid, Okla.
Newlin, Professor W. J., Amherst College, Amherst, Mass.
Nicol, Professor Carl C. W., Oberlin College, Oberlin, Ohio.
Nicholson, Professor J. A., University of Illinois, Urbana, Ill.
Nilson, Dr. Sven, 1015 Fourteenth Ave., S.E., Minneapolis, Minn.
Norris, Professor O. O., Ypsilanti State Normal College, Ypsilanti, Mich.
Northrop, Professor F. S. C., 1891 Yale Station, New Haven, Conn.
Norton, Mr. William J., 54 Patton Ave., Princeton, N. J.
Otto, Professor M. C., University of Wisconsin, Madison, Wis.
Overstreet, Professor H. A., College of the City of New York, New York City.
Pace, Professor E. A., Catholic University of America, Washington, D. C.

Paine, Dr. E. T., Cornell University, Ithaca, N. Y.
Pape, Dr. L. M., University of Chicago, Philosophy Library, Chicago, Ill.
Parker, Professor D. H., University of Michigan, Ann Arbor, Mich.
Parkhurst, Professor Helen, Barnard College, New York City.
Patrick, Professor G. T. W., University of Iowa, Iowa City, Iowa.
Patterson, Professor Charles H., University of Nebraska, Lincoln, Neb.
Patterson, Dean Herbert, Oklahoma A. & M. College, Stillwater, Okla.
Payne, President Bruce R., Teacher's College, Nashville, Tenn.
Payne, Professor Wilfred, Municipal University of Omaha, Omaha, Neb.
Pell, Professor Orlie A. H., 130 East 40th St., New York City.
Penney, President M. E., James Millikin University, Decatur, Ill.
Pepper, Professor S. C., University of California, Berkeley, Calif.
Perry, Professor Charles M., University of Oklahoma, Norman, Okla.
Perry, Professor Charner M., University of Texas, Austin, Texas.
Perry, Professor Ralph B., Harvard University, Cambridge, Mass.
Peterson, Dr. Houston, Columbia University, New York City.
Pfeiffer, Professor Frederick L., University of Minnesota, Minneapolis, Minn.
Phillips, Dr. George B., Miami University, Oxford, Ohio.
Phillips, Mr. H. J., University of Washington, Seattle, Wash.
Piatt, Professor D. A., University of California at Los Angeles, Los Angeles, Calif.
Picard, Professor Maurice, Dartmouth College, Hanover, N. H.
Pillsbury, Professor W. B., University of Michigan, Ann Arbor, Mich.
Piper, Professor Raymond F., Syracuse University, Syracuse, N. Y.
Porteous, Professor A. J. D., Edinburgh University, Edinburgh, Scotland.
Pott, Mr. William S. A., General Motors Export Co., Broadway at 57th St., New York City.
Powell, Professor Elmer E., Miami University, Oxford, Ohio.
Prall, Professor D. W., Harvard University, Cambridge, Mass.
Pratt, Professor J. B., Williams College, Williamstown, Mass.
Procter, Professor Thomas Hayes, Wellesley College, Wellesley, Mass.
Pyle, Professor C. B., Kansas State Teachers College, Pittsburg, Kansas.
Rader, Dr. Melvin, University of Washington, Seattle, Wash.
Ramsperger, Dr. A. G., University of Wisconsin, Madison, Wis.
Rand, Dr. Benjamin, Harvard University, Cambridge, Mass.

Randall, Professor J. H., Jr., Columbia University, New York City.
Rathbun, Miss Constance, Wellesley College, Wellesley, Mass.
Ratner, Dr. Joseph, 513 East 83rd St., New York City.
Raub, Professor William L., Knox College, Galesburg, Ill.
Rawlings, Miss Margaret B., Vassar College, Poughkeepsie, N. Y.
Rebec, Professor George, University of Oregon, Eugene, Ore.
Reed, Professor J. Frank, Garrett Biblical Institute, Evanston, Ill.
Regester, Professor J. D., College of Puget Sound, Tacoma, Wash.
Reid, Dr. Stanley B., 1908 Delaware St., Berkeley, Calif.
Reiser, Professor Oliver L., University of Pittsburgh, Pittsburgh, Pa.
Reynolds, Professor Paul A., Wesleyan University, Middletown, Conn.
Rieber, Professor C. H., University of California at Los Angeles, Los Angeles, Calif.
Riesen, Professor E. R., University of Arizona, Tucson, Ariz.
Riley, Professor Woodbridge, Vassar College, Poughkeepsie, N. Y.
Roback, Dr. A. A., 8 Prescott St., Cambridge, Mass.
Robbins, Mr. Reginald C., Union Club, 8 Park St., Boston, Mass.
Robins, Professor Sidney S., St. Lawrence University, Canton, N. Y.
Robinson, Professor D. S., University of Indiana, Bloomington, Ind.
Robinson, Professor E. A., State Teachers College, San Jose, Calif.
Robinson, Richard, Cornell University, Ithaca, N. Y.
Robson, Dr. J. W., Columbia University, New York City.
Roelofs, Professor Howard D., University of Cincinnati, Cincinnati, Ohio.
Rohrbaugh, Professor L. G., Dickinson College, Carlisle, Pa.
Rolbiecki, Professor John J., Catholic University, Washington, D. C.
Rosinger, Dr. Kurt Edward, 86 Perkins Hall, Harvard University, Cambridge, Mass.
Ruby, Dr. Lionel, University College, University of Chicago, Chicago, Ill.
Rudd, Professor Herbert F., University of New Hampshire, Durham, N. H.
Ruddick, Dr. C. T., University of Pennsylvania, Philadelphia, Pa.
Runkle, Professor Erwin W., Pennsylvania State College, Pa.
Ryan, Professor James H., Catholic University of America, Washington, D. C.
Sabine, Professor George H., Cornell University, Ithaca, N. Y.
Sabin-Smith, Professor Ethel, Mills College, Calif.
Sait, Professor Una Bernard, Scripps College, Claremont, Calif.
Sanborn, Professor Herbert C., Vanderbilt University, Nashville, Tenn.

Sanford, Miss Gertrude V., 2220 Dwight Way, Berkeley, Calif.
Savery, Professor William, University of Washington, Seattle, Wash.
Savides, Professor A. P., Russell Sage College, Troy, N. Y.
Saw, Miss Ruth L., Smith College, Northampton, Mass.
Schaub, Professor E. L., Northwestern University, Evanston, Ill.
Schaupp, Professor Zora, University of Nebraska, Lincoln, Neb.
Schilpp, Professor P. A., College of the Pacific, Stockton, Calif.
Schmidt, Professor Karl, Carleton College, Northfield, Minn.
Schneider, Professor Herbert W., Columbia University, New York City.
Schwarze, President William Nathaniel, Moravian College for Men, Bethlehem, Pa.
Scoon, Professor Robert M., Princeton University, Princeton, N. J.
Scott, Professor Benjamin D., Pomona College, Claremont, Calif.
Scott, Professor W. H., Ohio State University, Columbus, Ohio.
Searles, Professor H. L., University of Southern California, Los Angeles, Calif.
Sellars, Professor R. W., University of Michigan, Ann Arbor, Mich.
Sellen, Professor Arthur G., Washburn College, Topeka, Kansas.
Shafer, Professor Robert, Graduate School, University of Cincinnati, Cincinnati, Ohio.
Sharp, Professor Frank C., University of Wisconsin, Madison, Wis.
Sharrard, Professor J. A., University of Saskatchewan, Saskatoon, Canada.
Shaw, Professor C. G., New York University, New York City.
Shaw, Professor J. B., University of Illinois, Urbana, Ill.
Shearer, Professor Edna A., Smith College, Northampton, Mass.
Sheffer, Professor H. M., Harvard University, Cambridge, Mass.
Sheldon, Professor W. H., Yale University, New Haven, Conn.
Sherman, Professor C. L., Willamette University, Salem, Ore.
Shimer, Dr. Wm. A., 145 West 55th St., New York City.
Shryock, Dr. J. K., University of Pennsylvania, Philadelphia, Pa.
Singer, Professor Edgar A., University of Pennsylvania, Philadelphia, Pa.
Sisson, Professor E. O., Reed College, Portland, Ore.
Slaght, Professor W. E., Cornell College, Mt. Vernon, Iowa.
Sloninsky, Dr. Henry, 40 West 68th St., New York City.
Smart, Professor Harold R., Cornell University, Ithaca, N. Y.
Smith, Professor Henry B., Box 23, College Hall, University of Pennsylvania, Philadelphia, Pa.
Smith, Mr. H. Jeffery, University of Southern California, Los Angeles, Calif.

Smith, Professor T. V., University of Chicago, Chicago, Ill.
Sneath, Professor E. Hershey, 309 St. Ronan St., New Haven, Conn.
Snow, Dr. Adolph J., 500 Sheridan Road, Evanston, Ill.
Somerville, Mr. John, College of the City of New York, New York City.
Spaulding, Professor E. G., Princeton University, Princeton, N. J.
Speight, Professor H. E. B., Dartmouth College, Hanover, N. H.
Spencer, Professor Margaret N., Miami University, Oxford, Ohio.
Spencer, Professor W. Wylie, Miami University, Oxford, Ohio.
Springer, Professor F. E., College of Idaho, Caldwell, Idaho.
Squires, Professor W. H., Hamilton College, Clinton, N. Y.
Stace, Professor Walter T., Princeton University, Princeton, N. J.
Stallknecht, Dr. Newton P., Bowdoin College, Brunswick, Me.
Stanley, Professor Philip, Union College, Schenectady, N. Y.
Starbuck, Professor E. D., University of Southern California, Los Angeles, Calif.
Steere, Professor Douglas V., Haverford College, Haverford, Pa.
Stokes, Dr. Ella H., Penn College, Oskaloosa, Iowa.
Stone, Dr. Wendell C., Yale University, New Haven, Conn.
Stoops, Professor J. D., Grinnell College, Grinnell, Iowa.
Storer, Mr. Morris V., Lafayette College, Easton, Pa.
Storrs, Dr. Margaret, Smith College, Northampton, Mass.
Strong, Professor C. A., Fiesole, Florence, Italy. *Life Member.*
Strong, Dr. Edward W., 803 Regal Road, Berkeley, Calif.
Stuart, Professor H. W., Stanford University, Calif.
Swabey, Professor Marie Collins, New York University, Washington Square, New York City.
Swabey, Professor W. Curtis, New York University, University Heights, New York City.
Swenson, Professor David F., University of Minnesota, Minneapolis, Minn.
Swift, Professor R. F., Rockford, College, Rockford, Ill.
Taeusch, Professor C. F., Harvard School of Business Administration, Cambridge, Mass.
Talbert, Professor Ernest L., University of Cincinnati, Cincinnati, Ohio.
Talbot, Professor Ellen B., Mt. Holyoke College, South Hadley, Mass.
Tapper, Professor Bonno, University of Iowa, Iowa City, Iowa.
Tawney, Professor Guy A., University of Illinois, Urbana, Ill.
Taylor, Professor W. S., Pierce Hall, Northampton, Mass.
Ten Hoor, Professor Martin, Tulane University, New Orleans, La.

Terrell, Professor Glanville, Louisa, Va.
Thalheimer, Dr. Ross, Johns Hopkins University, Baltimore, Md.
Thilly, Professor Frank, Cornell University, Ithaca, N. Y.
Thomas, Professor George F., Swarthmore College, Swarthmore, Pa.
Thomas, Professor Wendell M., Hawaii School of Religion, Honolulu, Hawaii.
Thompson, Professor C. G., Lincoln Memorial University, Harrogate, Tenn.
Thompson, Professor R. C., University of Nevada, Reno, Nev.
Thompson, Professor Samuel, Monmouth College, Monmouth, Ill.
Thomson, Professor M. K., 729 West Michigan Ave., Ypsilanti, Mich.
Thorndike, Professor E. L., Columbia University, New York City.
Titus, Professor Harold H., Denison University, Granville, Ohio.
Toll, Professor C. H., Amherst College, Amherst, Mass.
Tonness, Dr. Alfred, 5424 Cornell Ave., Chicago, Ill.
Tower, Professor C. V., Ursinus College, Collegeville, Pa.
Townsend, Professor H. G., University of Oregon, Eugene, Ore.
Trap, Professor William M., College of the city of Detroit, Detroit, Mich.
Tsanoff, Professor R. A., The Rice Institute, Houston, Texas.
Tufts, Professor James H., 87 Romero Canyon Road, Santa Barbara, Calif.
Tufts, Dr. Matilde Castro, 87 Romero Canyon Road, Santa Barbara, Calif.
Turner, Professor John P., Brooklyn College, Brooklyn, N. Y.
Tuttle, Professor John R., Elmira College, Elmira, N. Y.
Urban, Professor Wilbur M., Yale University, New Haven, Conn.
Ushenko, Professor A. P., 612 Catherine St., Ann Arbor, Mich.
Van Becelaere, Rev. E. L., 1428 Warren West, Detroit, Mich.
Van de Walle, Professor William E., University of Rochester, Rochester, N. Y.
Van Riper, Dr. Benjamin, 6816 Lakewood Ave., Chicago, Ill.
Veazie, Professor Walter B., University of Colorado, Boulder, Colo.
Veltman, Dr. Désiré, Princeton University, Princeton, N. J.
Vibbert, Professor Charles B., University of Michigan, Ann Arbor, Mich.
Vlastos, Professor Gregory, Queen's University, Kingston, Ont.
Walcott, Professor G. D., Long Island University, Brooklyn, N. Y.
Warbeke, Professor John M., Mt. Holyoke College, South Hadley, Mass.
Ward, Professor Paul W., Syracuse University, Syracuse, N. Y.

Warren, Dean William M., Boston University, Boston, Mass.
Warren, Professor W. P., Furman University, Greenville, S. C.
Watson, Professor A. C., Marietta College, Marietta, Ohio.
Weiss, Dr. Paul, Bryn Mawr College, Bryn Mawr, Pa.
Wells, Professor Wesley R., Syracuse University, Syracuse, N. Y.
Werkmeister, Professor W. H., University of Nebraska, Lincoln, Neb.
Weyer, Dean Edward M., Washington and Jefferson College, Washington, Pa.
Wheelright, Professor Philip E., Washington Square College, New York University, New York City.
Whitchurch, Professor Irl Goldwin, Garrett Biblical Institute, Evanston, Ill.
Whitehead, Professor Alfred N., Harvard University, Cambridge, Mass.
Whitney, Professor G. W. T., Princeton University, Princeton, N. J.
Widgery, Professor Alban G., Duke University, Durham, N. C.
Wiener, Dr. Philip P., 2201 Amsterdam Ave., New York City.
Wild, Professor John, Harvard University, Cambridge, Mass.
Wilde, Professor Norman, University of Minnesota, Minneapolis, Minn.
Williams, Professor D. C., University of California at Los Angeles, Los Angeles, Calif.
Williams, Mr. Gardner, 2641 Cheltenham Road, Toledo, Ohio.
Williams, Professor S. P., Lake Forest University, Lake Forest, Ill.
Williamson, Professor Mary, Hollins College, Hollins, Va.
Wilson, Professor G. A., Syracuse University, Syracuse, N. Y.
Wilson, Dr. Mabel Virginia, 103 Hanshaw Road, Ithaca, N. Y.
Wolfson, Professor Harry A., Harvard University, Cambridge, Mass.
Wood, Professor Ledger, Princeton University, Princeton, N. J.
Woodbridge, Professor F. J. E., Columbia University, New York City.
Woods, Professor James H., Harvard University, Cambridge, Mass.
Wright, Professor H. W., University of Manitoba, Winnipeg, Canada.
Wright, Professor William K., Dartmouth College, Hanover, N. H.
Yeaton, Professor Ethel K., 189 Forest St., Oberlin, Ohio.
Zybura, The Rev. John S., St. Francis Hospital, Colorado Springs, Colo.

ASSOCIATE MEMBERS

Adlerblum, Mrs. Nima H., 99 Central Park West, New York City.
Athearn, Mr. Clarence, 21 Sixth St., N.E., Washington, D. C.
Bradley, Mr. J. Harold, Boston Ethical Society, Boston, Mass.
Dunn, Mrs. Gano, Washington Square North, New York City.

Gogate, Mr. R. V., New Jersey Law School, Newark, N. J.
Jaffe, Dr. Haym, Penn Treaty Junior High School, Philadelphia, Pa.
Kamiat, Mr. Arnold H., c/o Thomas Publishing Co., 461 Eighth Ave., New York City.
Leavens, Dr. R. F., 1900 Yosemite Road, Berkeley, Calif.
MacKnight, Mrs. Lydia E., 439 West 123rd St., New York City.
McConnell, Bishop Francis J., 150 Fifth Ave., New York City.
Mason, Dr. Gabriel R., Abraham Lincoln High School, Brooklyn, N. Y.
Maxwell, Dr. Wm., State Teachers College, Santa Barbara, Calif.
Roth, Mr. George K., 6312 South Marbrisa Ave., Huntington Park, Calif.
Skulsky, Mr. Samuel, New York City.
Tenney, Dr. E. V., Fresno State College, Fresno, Calif.
Thalheimer, Mr. A., Roxbury Place, Mt. Washington, Baltimore, Md.
Urban, Professor Percy L., Berkeley Divinity School, New Haven, Conn.
Wilson, Dr. David H., Faculty Club, Harvard University, Cambridge, Mass.
Woods, Mr. Anderson, 1454 East 18th St., Brooklyn, N. Y.

Honorary Member

Carus, Mrs. Mary Hegeler, LaSalle, Ill.

THE LIBRARY OF THE
JUL 2 0 193
UNIVERSITY OF ILLINOIS.